



SEA AND INLAND FISHERIES

REPORT FOR 1968

AN- ROINN TALMHAIOCHTA AGUS IASCAIGH
(Department of Agriculture and Fisheries)
FO-ROINN IASCAIGH.
(Fisheries Division)

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REPORT
OF THE
MINISTER FOR AGRICULTURE AND FISHERIES
ON THE
SEA AND INLAND FISHERIES
FOR THE YEAR
1968.

PART I.

SEA FISHERIES

Landings of all sea-fish in 1968, at a value of £2,403,781, exceeded those of the previous year by £251,009 and again attained a new record figure. Most noteworthy was the increase in the value of shellfish which rose from £516,623 in 1967 to £735,030; demersal fish gained £31,953 to reach £1,111,747; pelagic fish valued at £557,004 showed a marginal increase of £649.

The weights and values of annual landings of sea-fish (excluding shellfish) since 1959 are set out in the following table:

TABLE 1.

Year		Cwt.	£
1968	...	836,156	1,668,751
1967	...	833,649	1,636,149
1966	...	626,316	1,454,175
1965	...	562,677	1,269,111
1964	...	487,871	1,084,442
1963	...	399,280	1,059,827
1962	...	441,149	1,169,201
1961	...	516,207	1,079,556
1960	...	688,421	1,271,980
1959	...	592,319	1,205,971

Details of quantities and values of the several varieties of sea-fish and shellfish landed in 1967 and 1968 are given in Appendix No. 1. The average price per cwt. obtained for each variety of sea-fish (other than shellfish) from 1961 onwards is shown in Appendix No. 2.

Small imports of white fish, mainly plaice, were, as in previous years, permitted when supplies from home landings fell short of home market demand.

The leading fishing ports in 1968 in order of value of fish landed were: Killybegs, Howth, Dunmore East, Castletownbere, Dun Laoghaire, Dingle and Greencastle. As compared with the corresponding order of importance in 1967 Howth advanced from third place to take precedence over Dunmore East, while Dun Laoghaire and Greencastle took the places formerly held by Galway and Kilmore Quay.

DEMERSAL FISHERY.—While the total quantity landed (313,241 cwt.) was virtually the same as for 1967, the landings of plaice at 42,720 cwt. showed an increase of 47% on the record 1967 catch. Landings of ray/skate and cod also showed significant gains but the whiting catch dropped from 120,981 cwt. in 1967 to 106,667 cwt. Even so, whiting continued to be the variety caught in greatest quantity and was followed by cod, plaice, ray/skate and haddock.

Despite the large increase in plaice landings, the price at first sale remained strong as did that for cod and ray/skate. Prices of other varieties increased somewhat and the overall value, despite a drop of 197 cwt. in landings, showed an increase of £31,953. Plaice was first in terms of cash earnings with cod next and whiting falling back to third place. These three varieties contributed some 64% of the total value of the demersal catch. Next in order of value were:—ray/skate, haddock, soles and pollack.

The weights, total value and average value of demersal fish over the past ten years are shown in the following table.

TABLE 2.

Year	Quantity	Value	Average Value per cwt.
	cwt.	£	s. d.
1968	313,241	1,111,747	71 0
1967	313,438	1,079,794	68 11
1966	272,491	995,703	73 0
1965	282,192	959,362	68 0
1964	267,155	876,310	65 7
1963	210,318	829,367	78 10
1962	230,110	866,547	75 4
1961	212,703	820,911	77 2
1960	233,785	818,828	70 1
1959	258,178	800,698	62 0

PELAGIC FISHERY.—The total pelagic catch was 2,704 cwt. greater than that for 1967. Landings of herring, however, fell from 465,606 cwt. in 1967 to 452,160 cwt. in 1968, a drop of 13,446 cwt., but the value to fishermen at £496,753 was only £2,527 short of the previous

year's record figure. Landings of sprat rose from 9,728 cwt. in 1967 to 28,117 cwt. and accounted for £11,694 in earnings. Mackerel landings fell from 44,196 cwt. in 1967 to 42,590 cwt. in 1968. The average landed price for herrings at 22/- per cwt. showed a slight increase on 1967 prices while the average price for mackerel (22/9d per cwt.) showed a marginal reduction.

Herrings:—The 1967/68 herring season off the south-east coast continued with good results during January and February, 1968. The season extended later than in 1966/67 and did not come to a close until 16th February, 1968. From 1st January to 16th February landings from the fishery amounted to 120,000 cwt., as compared with 78,000 cwt. in the period from 1st January to 18th January, 1967. Fifty-eight boats took part in the fishery and the majority of the catch was taken by paired mid-water trawls and bottom trawls. The 1968/69 season opened later than usual and it was not until the end of November that shoals were located in quantity. Fishing during November and December was disappointing due to adverse weather conditions and the absence of shoals from inshore waters. The total quantity taken during this period was 62,300 cwt. compared with 106,000 cwt. during the corresponding period of 1967. The majority of the catch was landed at Dunmore East but some landings were also made at Cobh. Shoals were again located over a wide area extending from Kinsale to the Keeraghs in Baginbun Bay. Total landings of herrings from this fishery for the year 1968 amounted to 180,000 cwt. as compared with 184,000 cwt. in 1967 and 129,000 cwt. in 1966.

The 1967/68 winter herring season off the Donegal coast came to a close in early February, 1968 and the landings from the fishery from the 1st January, 1968 up to the end of the season amounted to 44,000 cwt. as compared with 64,000 cwt. in the January and February period of 1967. The quality of the herrings during the season was generally poor. Landings of herrings continued to be made during the Spring and Summer months and in the period from March to the end of October 67,000 cwt. were landed. The 1968/69 winter season began in November and by the 31st December 152,000 cwt. had been landed as compared with 143,000 cwt. in the same period in 1967. Substantial quantities of herrings were landed at Sligo during 1968, because of its proximity to the fishing grounds. The number of boats engaged in this fishery in 1968/69 decreased slightly as some of the Killybegs skippers considered it more remunerative to fish the south coast winter herrings where the quality of the herring is generally better and prices accordingly higher. Fishing in 1968/69 took place over a wide area. Total landings in 1968 from the Donegal fishery amounted to 264,000 cwt. as compared with 241,000 cwt. in 1967 and 151,000 cwt. in 1966.

The small Autumn fishery off the south-west coast, initiated in 1967, continued in 1968 from August to November. However, as in

1967 bad weather conditions were encountered and the total catch decreased from 13,000 cwt. in 1967 to 10,500 cwt. in 1968. The majority of the herrings were landed at Castletownbere and were rough packed for export to the French market.

Most of the herring catch is exported in fresh or processed forms. Notwithstanding the slight reduction in the catch in 1968, exports of herrings showed a sizeable increase on the 1967 figure. Exports of fresh, chilled or frozen herrings amounted to 152,257 cwt. valued at £228,071 as compared with 79,421 cwt. valued at £155,476 in 1967. These exports went mainly to Great Britain, the Netherlands, France and Federal Republic of Germany. Exports in cured and marinated forms increased from 170,016 cwt. (£324,957) in 1967 to 193,275 cwt. (£348,648) in 1968. Here the markets were mainly in France, the Netherlands and Great Britain which took over from the Federal Republic of Germany as the third leading importer of cured and marinated herrings from Ireland.

The following table shows the quantity, total value and unit value of herrings landed in each of the past ten years.

TABLE 3.

Year	Quantity	Value	Average Value per cwt.	
	cwt.	£	s.	d.
1968	452,160	496,753	22	0
1967	465,606	499,280	21	5
1966	293,300	399,312	27	3
1965	210,555	251,521	23	11
1964	160,929	155,440	19	4
1963	165,696	193,068	23	4
1962	187,534	260,463	27	9
1961	250,078	209,710	16	9
1960	417,414	394,945	18	11
1959	308,064	364,130	23	8

Sprats:—Landings of sprats increased from 9,728 cwt. valued at £5,619 in 1967 to 28,117 cwt. valued at £11,694 in 1968. The bulk of the 1968 catch was landed at Castletownbere, but some small quantities were landed at Clogherhead, Valentia Harbour, Dingle and Killybegs. As in previous years the catch was disposed of partly as feeding material for mink and pond trout and partly for reduction to fishmeal.

Mackerel:—Landings of mackerel declined slightly as compared with 1967 but at 42,590 cwt. were still over 40% higher than in 1966. The average price of 22s. 9d. per cwt. showed a drop of 5d. per cwt. on 1967. Most of the catch was disposed of for reduction to fishmeal which accounts for the relatively low average price realised. The chief landing centres for mackerel were:—Killybegs, Dingle, Castletownbere, Valentia/Cahiriveen, Schull and Howth.

Statistics of mackerel landings over the past ten years are given in the following table:—

TABLE 4.

Year	Quantity	Value	Average Value per cwt.	
	cwt.	£	s.	d.
1968	42,590	48,526	22	9
1967	44,196	51,163	23	2
1966	29,645	46,389	31	4
1965	40,213	45,853	22	10
1964	26,308	38,891	29	7
1963	14,980	33,753	45	1
1962	16,475	39,297	47	8
1961	24,007	38,238	31	10
1960	37,125	58,144	31	4
1959	25,645	40,978	31	11

SHELLFISH.—Landings of shellfish which exceeded those for 1967 by £218,407 attained a record value of £735,030. All varieties with the single exception of crawfish (which dropped by some 5,000 in numbers) showed substantial increases in the quantities caught. Most noticeable increases were in crabs, scallops, mussels and Dublin Bay prawns. Increased fishing effort, arising from new processing outlets, and improved methods of capture were chiefly responsible for the gain in shellfish earnings by the fishermen.

Values of shellfish landings over the past ten years were:—

TABLE 5.

	£
1968	735,030
1967	516,623
1966	579,161
1965	431,262
1964	420,114
1963	353,863
1962	329,794
1961	277,686
1960	339,625
1959	402,716

EXPORTS.—At £2,677,573 exports of fish and fishery products, including both sea-fish products and freshwater fish products (see Part II of this Report), established a new record value. Exports of sea-fish products were valued at £1,784,589 as compared with £1,435,247 in 1967. The shellfish and herring sectors accounted largely for this substantial increase. Details of the exports are given in Appendix No. 4.

PERSONNEL and VESSELS.—The total number of men engaged in sea fishing increased from 5,376 in 1967 to 5,443 in 1968. While

there was a small decrease (from 1,721 to 1,687) in the number of full-time fishermen, the number of part-time fishermen again increased in line with the expansion of the fleet of motor vessels under 10 gross tons used mainly for shellfish fishing.

The overall number of fishing vessels in operation increased from 1,766 in 1967 to 1,820 in 1968. The number of fishing boats of 26 gross tons and over, which account for the vast bulk of the wet fish catch, was 192 as compared to 175 in the previous year. A notable increase was also recorded in the number of motor vessels under 10 gross tons. The number of vessels in this category rose to 512 as compared with 436 in 1967 and 422 in 1966.

Further details are given in Appendix No. 7. A slight alteration has been made in the classification of boats in order to bring it into line with practice in other countries.

TRAINING OF FISHERMEN.—Revised arrangements for training boys as fishermen which were finalised in 1967 came into operation during 1968. The period of training was reduced to ten months comprising five months on board selected fishing vessels during which the trainee acquires practical fishing experience and five months attending a residential shore course at Moville, Co. Donegal, during which instruction is given in such subjects as seamanship, navigation, net-mending and cookery. A group of 30 boys commenced training under the revised scheme on 1st April, 1968, and at the end of the year were completing the practical side of the course aboard selected fishing vessels. A second group of 26 boys were at the end of 1968 attending the Moville course.

During 1968 port courses were continued to be provided by An Bord Iascaigh Mhara towards equipping experienced fishermen to qualify as skippers and as a result Certificates of Competency under the Merchant Shipping Acts were awarded to 66 fishermen.

AN BORD IASCAIGH MHARA.—The Board received from the Fisheries Vote, 1967/68, a grant of £575,000 in aid of current and capital development and administration. Repayable advances totalling £215,000 were also made to the Board from the Central Fund mainly for the provision of boats and gear.

A sustained advertising and promotional campaign coupled with improved distribution under the Board's market development programme resulted in a further increase in fish consumption. The consumer education programme aimed at stimulating interest in the value of fish as food and improving standards of fish cookery and presentation was continued. Some port fishery co-operatives initiated a container traffic in fresh demersal fish to the British market, with reasonable success. Plans for the co-ordination of fresh fish exporters' efforts under a common quality symbol with adequate promotional backing were well advanced.

During the year ended 31st March, 1968, the Board assisted Irish fishermen in acquiring 55 new and 18 secondhand boats, representing a total capital value of £500,000. Technical assistance was given to the purchasers of these craft and demonstration visits of Continental-type craft were organised to help skippers in their choice of vessel. Decca navigator equipment was introduced on an experimental basis to the 50 ft. and 56 ft. boats in Greencastle.

SEA FISHERIES PROTECTION.—The Naval Service of the Department of Defence continued to provide by regular patrols, protection of the exclusive fishery limits and a conviction was secured in one case resulting in a fine and the forfeiture of fish and gear. One other foreign vessel was arrested for unlawfully entering within the exclusive fishery limits. Following prosecution the case was dismissed. In the conduct of these cases and in the enforcement of fishery protection measures generally the co-operation of the Garda Síochána was readily available.

EXPLORATORY VESSELS.—The exploratory fishing vessel *Cú Feasa* was out of commission from February until October, 1968 for overhaul. After returning to service she was engaged in assisting fishermen to locate shoals of herrings off the south-east and south coasts.

The second exploratory fishing vessel *Cú na Mara* spent the early part of the year in research work relating to plaice. From April to October, at the request of the Naval Authorities, she was engaged in salvage operations for the Aer Lingus plane which crashed in the Irish Sea. For the remainder of the year she engaged in short spells of experimental fishing.

MARINE WORKS.—On 2nd July, 1968 the Fisheries Harbour Centres Act (No. 18 of 1968) became law. This Act provides for the establishment and operation at Dunmore East, Castletownbere, Killybegs, Galway and Howth, of five major fishery harbour centres for the promotion and development of sea fishing, as well as the processing and selling of fish and the manufacture of fish products. It also provides powers for the acquisition of lands required for the establishment and development of those centres. During the year development work continued on the projects at Dunmore East, Castletownbere and Killybegs.

Large scale dredging work was carried out at Howth Harbour and schemes of improvement works were approved for Darby's Point, Co. Mayo, Burtonport, Co. Donegal, and Dingle, Co. Kerry. A revised and enlarged scheme of improvement works was also approved for Reen, Co. Cork, in substitution for one previously sanctioned in 1965. Due to unforeseen circumstances the contractor was unable to commence an approved improvement scheme at Kilmore Quay, Co. Wexford, during the year and work was deferred until the Spring of

1969. Arrangements were also completed to have the improvement works at Skerries, Co. Dublin, commenced as early as possible in 1969.

Substantial harbour improvement schemes were completed at Kilronan (Aran Islands), Co. Galway, and at Ballydavid, Co. Kerry. Other marine works were completed at Dunaff (Ballinacarta) and Portaleen, Co. Donegal; at Killerduff, Belderrig, Glenlara, Westport and Rathlacken, Co. Mayo; at Killeaney (Aran Islands) and Loughanbeg, Co. Galway; at Gleesk Pier (Sneem), Gurrane Quay, Rossdohan, Brandon Bay and Oysterbed (Sneem), Co. Kerry; and at Seven Heads (Bandon), Co. Cork. Works in progress at the end of the year included the improvement of landing facilities at Bunaninver, Newbridge (Lehardan), Inch Fort (Inch Island), Portmore (Malin Head) and An Uaig (Malinbeg), Co. Donegal; at Portacloy, Co. Mayo; at Kilkieran and Portach (Mweenish), Co. Galway; at Cuananna Harbour and Dooagh (Dooks), Co. Kerry; at Garnish (Dursey), Co. Cork and at Dun Laoghaire (Traders Wharf), Co. Dublin. Work was also in hand on the erection of beacons at Tullaghan Bay and navigation lights at Achill Sound, Co. Mayo. Work on the erection of navigation lights was completed at Keel (Purteen Harbour), Co. Mayo, and at Chapel Strand (Arranmore Island) and Burtonport (Southern approach channel), Co. Donegal.

The survey team set up to make an appraisal of the landing facilities which are required to meet present and expected needs of the fishing industry on the Mayo-Galway coast completed its task. A similar survey of the Donegal coast was commenced in October and was in progress at the end of the year.

SCIENTIFIC INVESTIGATIONS.—Fuller details of these investigations made during 1968 are given in the issue of the *Sea Fisheries Bulletin* (No. 6), 1969.

Investigations into the herring stocks at Dunmore East were continued throughout the year and a report was issued to the trade setting out the condition of the stocks during the 1967/68 fishing season. Samples of herrings from Castletownbere and Killybegs were also examined. One of the Assistant Inspectors of Fisheries contributed papers on the Dunmore East herring fishery (1962/1968) and on the herring fishery of the south-west coast to the Pelagic Fish (Northern) Committee of the International Council for the Exploration of the Sea (ICES) at its meeting in Copenhagen in October, 1968. The fat contents of samples of herrings were estimated from time to time and the results were made available to persons interested in the herring export trade.

A report on the commercial fishery for whiting in the Irish Sea was published during the year in *Irish Fisheries Investigations*, Series B. No. 4 (see page 62). The results of the whiting research cruises by the exploratory vessel *Cú Feasa* in the years 1963 to 1967, designed to study population densities, growth rates and mortalities on different

parts of the fishing grounds, were compiled during the year in preparation for publication.

Investigations of the blood proteins of plaice and herrings were undertaken during the year.

Considerable attention was also given to the study of the economics of the lobster fishery in relation to the number of lobsters caught and type of gear used. Diaries or log books kept by fishermen were used to obtain information as to the daily catch of lobsters, crawfish and crabs, the type of gear used, and the cost of operation etc. Over 6,000 lobsters were measured, sexed and the state of development of the females recorded from catches made at Cleggan, Co. Galway. From this information it should be possible to extract the rate of fishing mortality in the lobster fishery in this area. A paper on the growth rate and age of lobsters in Irish waters was presented to the Shellfish and Benthos Committee of the International Council for the Exploration of the Sea at the annual meeting in Copenhagen in October, 1968.

Studies on crawfish were undertaken during the year. Over 8,000 crawfish taken in areas from Dunmore East, Co. Waterford west and north to County Donegal were measured and sexed. A paper on the investigations on this species in 1966 and 1967 was also presented to the Shellfish and Benthos Committee of ICES.

A scheme of market sampling of Dublin Bay prawns (*Nephrops*) was started in June at Skerries, Co. Dublin, and in August and September a trawling experiment was undertaken using the exploratory vessel *Cú na Mara* to examine the effect of light on catches at different depths. A paper on the larval distribution of *Nephrops* in the Irish Sea was also presented to the Shellfish and Benthos Committee of ICES.

Work on oysters in Tralee Bay was carried on during the year when a large variety of artificial collectors for spat were tried out. As a result, the exact areas of greatest settlement of oyster spat in the Bay were determined. The object of these experiments was to assist the natural reproduction of oysters in this area. In conjunction with An Bord Iascaigh Mhara a study was made of oyster spawning and spatting at Clarenbridge, Co. Galway.

Various areas were surveyed during the year to assess the potentialities for mussel production. Large stocks were found in Wexford Harbour and this resource is now the subject of a successful processing industry. Experimental raft culture of mussels was successfully started in Castlemaine Harbour and this type of experiment is being extended to other areas. The "quality" of mussels from a number of areas was kept under review during the year.

Work on scallops, which had been in abeyance for some time, was restarted during the year. In counties Cork and Kerry the

relationship between catch and effort was investigated. Efforts were also made by histological examination of the reproductive organs to determine the time of the year at which this species spawns in the different localities.

Preliminary work was done to establish the conditions in Bantry Bay prior to the operation of the oil bunkering service there so that comparisons can be made in future as to its effects if any, on the natural populations of marine animals and plants. One of the Assistant Inspectors of Fisheries compiled a paper on the measures employed to combat the large scale oil pollution produced by the *Torrey Canyon* disaster. He also investigated a proprietary brand of detergent which has been recommended for removing oil from shore lines.

During the year a number of fish rare or scarce in Irish waters were recorded as follows:—

- a. Six gilled shark (*Hexanchus griseus*)
- b. Undulate ray (*Raia undulata*)
- c. White skate (*Raia marginata*)
- d. Deal-fish (*Trachipterus articus*)
- e. Stone-basse (*Polyprion americanus*)
- f. Ray's bream (*Brama raii*)
- g. Bogue (*Box boops*)
- h. Greater weever (*Trachinus draco*)
- i. Red band or red snake-fish (*Cepola rubescens*)
- j. Spanish mackerel (*Scomber colias*)
- k. Short finned tunny (*Sarda sarda*)
 - l. Black fish (*Centrolophus niger*)
- m. Streaked gurnard (*Trigla lineata*)
- n. Trigger or file fish (*Balistes capriscus*)

A report on these fishes was prepared at the close of the year under review for publication in the *Irish Naturalists' Journal*.

INTERNATIONAL AND OTHER CONFERENCES.

(1) INTERNATIONAL COUNCIL FOR THE EXPLORATION OF THE SEA.—This Council, founded in 1902 to co-ordinate fisheries research in the North Atlantic and its associated seas, held its annual meeting in Copenhagen in October, 1968 under the chairmanship of the Department's Inspector and Scientific Adviser who was elected President in 1966. This country's delegates, the President, in accordance with

procedure being unable to act as a national representative, were the Inspectors of Fisheries on both the sea and inland fisheries sides. One of the Assistant Inspectors of Fisheries and the Biologist to the Salmon Research Trust were also in attendance. A number of papers were contributed by members of the Department's staff on herrings, crawfish and Dublin Bay prawns (*Nephrops*). The Department's Inspector and Scientific Adviser in his capacity of President also presided over a symposium on the *Living resources of the African Atlantic Slope* organised by the Council, with the support of the Food and Agricultural Organisation of United Nations (FAO) at Tenerife in the Canary Islands in March. An Assistant Inspector of Fisheries on the marine side attended a *Training course on methods of fish stocks assessment* in Copenhagen in August and September. This course was organised by FAO in conjunction with the Council and the Danish Board for Technical Co-operation. Another Assistant Inspector of Fisheries on the marine side attended a symposium on *Marine Food Chains* organised by the Council in conjunction with the International Commission for the North-West Atlantic Fisheries (ICNAF), FAO and the International Biological Programme, in the University, Aarhus, Denmark, in July.

(2) NORTH-EAST ATLANTIC FISHERIES COMMISSION.—This Commission, established under the terms of the International Fisheries Convention of London of 1959 held its sixth meeting in Reykjavik, Iceland, in May, 1968. Ireland was represented by the Assistant Secretary in charge of fisheries and the Department's Inspector and Scientific Adviser. The latter was re-elected Chairman of the Infractions Committee and Vice-Chairman of Regional Committee II. Further plans were made for a programme of international control and the question of regulating fisheries by control of effort was further discussed.

(3) CHALLENGER SOCIETY.—This Society, which was established early in this century to foster the study of Oceanography in its widest sense, holds "Joint Meetings" with Marine Laboratories from time to time. The Department's Inspector and Engineer and an Assistant Inspector of Fisheries, attended the "Joint Meeting" at the University of Strathclyde, Glasgow, in July 1968. One section of the meeting was devoted to the cultivation of marine organisms and marine fish farming, which is of extreme interest at present to the Department.

(4) MEETING OF INFORMAL MARINE BIOLOGISTS GROUP.—Each year an informal meeting is held of persons engaged in research into marine biological problems of Irish interest. In March 1968 the third meeting of the Group took place in Galway under the chairmanship of Professor P. Ó Ceidigh, Professor of Zoology, University College, Galway. The meeting was attended by the Inspector of Fisheries on the marine side and a number of the Assistant Inspectors of Fisheries.

(5) COMMITTEE ON FISHERIES OF FAO.—The Assistant Secretary in charge of fisheries attended as an observer on behalf of Ireland at

this Committee meeting in Rome. The keynote of the meeting at which some forty nations were represented, was the necessity for international co-operation for the national exploitation of the fishery resources of the world.

(6) **CODEX ALIMENTARIUS COMMITTEE ON FISH AND FISHERY PRODUCTS.**—The Inspector and Engineer attended the meeting of the Committee on Fish and Fishery Products of the Codex Alimentarius Commission at Bergen, Norway, in October 1968 as a delegate in connection with the preparation of draft standards for various fishery products.

(7) **F.A.O. CONFERENCE ON FISHING PORTS AND PORT MARKETS.**—The Inspector and Engineer attended at the Conference held in Bremen, Germany, in October, 1968 and submitted a paper to the conference. A member of the administrative staff also attended.

ENGINEERING.—*Fishing Ports and Landing Places* :—The Committees set up in 1967 to examine and make recommendations on fishing ports and landing places in Counties Galway and Mayo completed the task and submitted reports to the Minister. A similar team was set up in 1968 to undertake a like assignment for County Donegal. All of the teams acted under the chairmanship of the Inspector and Engineer. Membership of the teams consisted of a representative from each of the following bodies: Department of Agriculture and Fisheries, Office of Public Works, Roinn na Gaeltachta, the County Council of the county concerned and An Bord Iascaigh Mhara.

***Bye-Laws, Licences, Orders and Definitions* :**—Maps were prepared in connection with various bye-laws, orders, licences and other statutory instruments and, in particular, for the Ballisodare Bay Oyster Fishery. Allegations of infringements of boundaries of one Oyster Fishery in the West of Ireland were investigated.

TECHNOLOGY.—*Fish Quality Regulations* :—Nine Fish Quality Officers were recruited to ensure compliance with the Demersal Fish (Handling, Storage and Transport) Regulations, 1967. These Regulations, which came into operation on 1st April, 1968, are designed to maintain our fish in the highest possible quality which is the keynote in expanding markets at home and abroad. A training course for the officers, which comprised a series of lectures on all aspects of the catching, handling and marketing of fish was organised by the Department with the co-operation of An Bord Iascaigh Mhara. In addition to the lectures, there were practical demonstrations of the effectiveness of the Regulations.

Work continued on the application of electricity as a means of increasing the catch of nephrops by providing an electric field in the vicinity of the trawl.

LEGISLATION.—The Fishery Harbour Centres Act, 1968 (No. 18 of 1968) was enacted on 2nd July, 1968. It provides, in the main, for the establishment and operation of five fishery harbour centres for the promotion and development of the sea fishing industry and it also provides powers for the acquisition of lands in those centres.

Particulars of Statutory Instruments relating to sea fisheries made during the year are included in Appendix No. 22.

PART II.

INLAND FISHERIES

The catch of salmon in 1968 by all methods was 2,702,248 lb valued at £669,428, compared with 2,720,930 lb valued at £665,242 in 1967. For the seventh year in succession the catch of salmon was exceedingly high due partly, in the case of 1968, to reasonably good runs of grilse but also to the weather conditions prevailing during the peak of the runs of grilse i.e. extreme drought conditions which greatly favoured commercial methods of fishing. The total number of salmon taken by all methods was 403,027. Of these, 33,749 or 7.6% were taken on rod and line. In view of the very poor conditions for angling in 1968 when compared with those prevailing in the previous year this catch must be considered highly satisfactory. The catch of sea trout at 124,679 lb valued at £22,982, although slightly down on that of 1967, must also be considered highly satisfactory in the light of the prevailing weather conditions. It should be pointed out, moreover, that the 1967 sea trout catch was substantially higher than the average for the past ten years or so. Fuller details of the catches of salmon and sea trout taken in the years 1966 to 1968 inclusive are given in Appendix II. The catches made in the former Merville Fishery District now incorporated in the Foyle Area are not included in Appendix II but can be found in that part of this Report dealing with the Foyle Fisheries Commission.

In 1968 the runs of spring fish (i.e. those which have spent two or three years feeding in the sea) were rather poor, as they have been for some years. The numbers of small summer fish (just over two full years feeding in the sea) were again small. This age group which normally runs in May and early June has been poor for some years past.

For much of the summer period most Irish rivers were very low due to a prolonged drought, which extended in many areas for several weeks. Consequently angling was at a standstill in such areas for long periods. Whilst this resulted in a reduction in the catch on rod and line it is gratifying that despite these adverse conditions the number of salmon taken by this method only showed a reduction of about 1,600 fish on the total of 35,341 for 1967. The disease Ulcerative Dermal Necrosis (UDN) was also responsible for reduced catches of salmon on rod and line in rivers which were the most heavily affected, but in other affected rivers good catches of healthy fish were made. Conditions were generally highly favourable for commercial methods of fishing and the escapement would appear in most cases to have been lower than usual. All available evidence indicates that the runs of salmon and grilse into Irish rivers in 1968 were only about the average of recent years, the high record of catch being maintained at the expense of the escapement. Spawning reports varied considerably from one river to another—only for four major river systems was salmon spawning reported to have been at a markedly low level.

There were many compensatingly good reports and spawning can be said to have averaged out at much the same level as in recent seasons.

Appendix No. 12 gives the catch of salmon and grilse for each Fishery District for the years 1966 to 1968, inclusive. In 1968 the catch of salmon (by weight) was distributed as follows:—

Draft nets	...	39.2%
Drift nets	...	38.5%
Stake nets and other commercial methods	...	13.0%
Rod and line	...	9.3%

The proportion of fish taken by drift nets in 1968 showed a marginal increase over that of the previous year (37.3%).

The number of angling licences for salmon and sea trout (at 9,862) showed a marked drop on that for the previous year. This was so mainly because conditions were unfavourable for angling over much of the country for a considerable part of the summer period and to a lesser extent because some anglers were no doubt deterred from fishing in those rivers badly affected by disease. The average catch of salmon per licence was 3.4 fish weighing 25.5 lb and valued at £8. 5. 7. as compared with 3.3 fish weighing 25 lb valued at £7. 17. 1. for 1967. The average weight of the rod-caught fish was 7.5 lb or about the same as for 1967. The highest average weight (12.5 lb) of salmon taken on rod and line was, as usual, for the Drogheda Fishery District. In this District most of the rod-caught fish are either small spring (two years feeding in the sea) or large spring (three years feeding in the sea), fish which run early in the fishing season. On the other hand in the West of Ireland Districts the average weight is low because of the very high proportion of grilse taken on rod and line.

The sea trout catch at 124,679 lb was distributed by weight as follows:—

Rod and line	...	55.8%
Draft nets	...	36.8%
Drift nets	...	6.5%
Stake nets, etc.	...	0.9%

The actual weight of the catch of sea trout on rod and line was 69,584 lb, or slightly greater than that for 1967 which was 68,078 lb. The average catch of sea trout per licence, as explained in previous reports, gives a poor indication of the abundance of this species in many Fishery Districts because most anglers are actually fishing for salmon rather than sea trout. In some of the western Fishery Districts, however, the catch per licence does give a reasonably accurate idea of the potentialities. For example, in the Connemara Fishery District the catch of sea trout per licence was 16.3 fish weighing 15.4 lb, which

is very close to the results obtained in this District for the years 1966 and 1967.

The Corporation of Dublin Wholesale Fish Market handled in 1968, 130, 581 salmon and grilse weighing 894,979 lb as compared with 95,168 fish weighing 708,130 lb for the year 1967. In 1968, therefore, this market handled 32.4% by number, and 29.3% by weight, of all fish taken in the country outside the Foyle area.

The fish disease Ulcerative Dermal Necrosis (UDN) continued to affect stocks of salmon during 1968.

The incidence of the disease varied greatly throughout the country, the worst affected river systems being the Cork Blackwater, Rivers Lee and Bandon and rivers in the Kenmare area of County Kerry.

The disease was confined mainly to salmon but a serious outbreak occurred in spawning brown trout at Oughterard, Co. Galway in October. These fish were treated chemically so as to keep them alive as far as practicable until they were spawned artificially—it having been established that fish suffering from UDN spawn successfully and that the resultant eggs hatch normally.

Despite reports to the contrary, salmon smolts appear to be largely unaffected by the disease and, apart from a few unconfirmed reports, coarse fish also appear to have escaped becoming affected. Rainbow trout are, of course, immune to the disease. Fuller details of this disease have been given in the Department's *Inland Fisheries Bulletins*.

As has been the case in previous years the disease was most virulent in the colder months of the year. As that is also the period during which fish spawn the position regarding UDN becomes confused as many spawning and spent salmon particularly the males and some trout show fungal growths which cannot be readily distinguished from UDN when the fish are in the water.

Investigations into the disease were continued by the staff of the Veterinary Research Laboratory at Abbottstown, Co. Dublin and of the Fisheries Division of the Department. Considerable progress was made in this regard and it has been confirmed that the causative organism is filterable. The Salmon Research Trust of Ireland, Inc. continued to make available a bacteriological technician to assist in this work. The Junior Fellow appointed in 1966 to conduct researches into the fungal aspects of the disease continued to work under the supervision of a lecturer of the Department of Botany in University College, Dublin. On his appointment to a Lecturership in that Department he undertook to continue his research work with the aid of a grant from this Department towards expenses and the provision of technical assistance. Investigations into the blood cells and proteins of diseased and healthy fish were continued during the year by a lecturer in the Zoology Department of University College, Cork.

According to reports from the various Boards of Conservators and others the runs of smolts to the sea in 1968 appear to have been up to standard. It is gratifying to note that even in rivers badly affected by UDN the smolt runs appeared to be well maintained.

Despite active attempts to obtain salmon ova from abroad for the special restocking programme to offset the effects of UDN, it proved impossible to obtain supplies in the 1967/68 season. Firm arrangements were, however, made for the importation of salmon ova from Canada, Iceland and Sweden for the 1968/69 season. With a view to finalising supplies from Iceland an officer of the Department visited that country in December and made the necessary arrangements for the purchase and supply of 700,000 salmon ova which were due to be despatched early in the New Year.

Officers of the Department continued to keep in touch with developments in salmon markets and visited Billingsgate Market, London, the largest foreign market for Irish salmon, during the year.

BOARDS OF CONSERVATORS.—Details of receipts and expenditure of Boards of Conservators in the fishery year ended 30th September, 1968 are given in Appendix 18.

EMPLOYMENT IN THE INDUSTRY.—Exclusive of persons employed on the marketing and transport of fish a total of some 5,618 persons found either whole-time or part-time employment in inland fisheries during the year. The figure includes 3,537 persons estimated as engaged in netting for salmon under common law right, 547 employed by Boards of Conservators on protection of fisheries over the open and close seasons, 800 engaged in netting in the Foyle Area or employed in that area as ghillies or on protection work, 141 engaged in devolpment work on behalf of the Inland Fisheries Trust and the remainder employed by proprietors of commercial salmon fisheries, by fishery owners or by angling associations.

INSTRUMENTS OF CAPTURE.—The total number of fishing licences of all kinds issued during the year was 11,796 representing a decrease of 830 on the figure for 1967. The totals in recent years were:—

1967	...	12,626
1966	...	13,809
1965	...	14,647
1964	...	13,598
1963	...	11,343
1962	...	10,479
1961	...	9,980
1960	...	10,059

The numbers of the various classes of licences issued in each fishery district during the year and the rates of licence duty are given in Appendices Nos. 19 and 20 respectively.

OFFENCES AGAINST THE FISHERY LAWS.—Prosecutions during 1968 numbered 251 as compared with 264 in 1967. The Garda Síochána continued to co-operate with the Boards of Conservators in the protection of inland fisheries during the year.

EXPORTS OF FRESHWATER FISH.—*Salmon*.—The decline in the volume of the salmon catch resulted in a slight decrease in salmon exports. The total quantity of salmon exported in fresh, chilled, frozen and smoked forms was 20,330 cwt. as compared with 20,553 cwt. in 1967. The reduction in quantity was however more than offset by the higher prices obtained on the export markets. The total value of salmon exports gained £23,603 to reach £808,622. The details for the two years are as follows:—

	1968		1967	
	cwt.	£	cwt.	£
Fresh, chilled and frozen salmon ...	19,847	755,339	20,228	752,123
Smoked salmon ...	483	53,283	325	32,896

Of the total quantity of fresh, chilled and frozen salmon exported in 1968, 13,877 cwt. went to Great Britain, 3,162 cwt. to France, 2,159 cwt. to the Six Counties and 285 cwt. to Belgium; smaller quantities went to the Netherlands, Sweden, Switzerland, the Federal Republic of Germany, Spain, the Bahamas, the U.S.A., Norway, Denmark and Italy. The smoked salmon was exported mainly to Great Britain (112 cwt.), Switzerland (106 cwt.), Belgium (83 cwt.), and the U.S.A. (81 cwt.). The average export price of fresh, chilled or frozen salmon was £38. 1. 2. per cwt. as compared with £37. 3. 8. per cwt. in 1967. The foregoing figures include landings of salmon in County Donegal from waters in the area administered by the Foyle Fisheries Commission.

Licences to export salmon under the Agriculture and Fishery Products (Regulation of Export) Act, 1947 (Export of Salmon) Order, 1954 (S.I. No. 275 of 1954) were issued to 99 persons or firms during the year.

Rainbow Trout.—Exports of rainbow trout in 1968 amounted to 860 cwt. valued at £16,000 as compared with 1,561 cwt. valued at £29,850 in 1967. The reduction was due to a number of reasons including difficulties in importing fish food from countries affected by Foot and Mouth disease.

Eels.—Exports of eels amounted to 2,851 cwt. valued at £68,000 compared with 2,839 cwt. valued at £62,606 in 1967.

DEVELOPMENT OF EEL FISHING.—A University graduate who was awarded a research studentship in 1966 to examine the eel population of the Boyne River System completed his investigations and submitted his report. This study has provided a very useful basis for further investigations.

Experiments with eel fyke nets continued. A second season's work was carried out on Lough Corrib and also on lakes in Co. Clare and in Co. Cavan. So far examination of the catches has indicated that this method of fishing is unlikely to yield large profits, though it could be worthwhile for a part-time operator working on a small scale in some places. Other investigations continued during the year and in all five student bursaries were awarded to assist in the work.

Forty-five eel fishing authorisations were issued during the year and advice was given to interested parties on design and operation of eel weirs.

ARTIFICIAL PROPAGATION.—Details of salmon, sea trout and brown trout ova produced at the various hatcheries are given at Appendix No. 23.

The output of salmon ova in the 1968 spawning season amounted to 2,759,000 as compared with 4,085,000 produced in the previous season. 520,000 salmon ova/fry and 17,500 sea trout ova were distributed from the Department's hatchery at Glenties.

Efforts made by the Department to locate suitable disease-free sources abroad from which ova could be procured to supplement home supplies for the re-stocking of rivers which had been affected by UDN disease were unsuccessful.

The Inland Fisheries Trust reared some 2½ million brown trout fry, fingerlings and summerlings in their fish farms and rearing stations in 1968. The bulk of this output was released in waters under development and 132,200 were sold to angling interests and clubs. Of 101,000 rainbow trout fingerlings raised, 99,000 were stocked in various lakes and in addition 200,000 rainbow trout ova were sold, chiefly to commercial fish farmers.

The produce of Cong Hatchery was distributed as follows:

100,000 ova to restock the Rivers Sheen and Blackwater
50,000 ova „ „ „ River Feale System.

The remainder was reared to the underyearling stage and distributed as follows:

100,000 underyearlings to River Moy and tributaries
20,000 „ „ River Deel and tributaries
27,000 „ „ the River Corrib System.

REGULATION OF ERNE SALMON FISHERY.—Because of the improvement in the salmon stocks of the River Erne it was not found necessary to impose in 1968 restrictions on commercial salmon fishing of the kind in operation for a number of years up to 1966. The special local licence duty was again £40 and 17 draft net licences were issued.

The catch by nets (15,286) was the highest recorded since 1949. The total run of fish at 25,296 is the highest recorded since 1953. 1,358 fish were caught in the E.S.B. traps.

The salmon disease (UDN) was again in evidence and approximately 700 diseased fish were removed from the river.

REHABILITATION OF SALMON STOCKS IN THE RIVER LEE.—Investigations carried out during the year indicated that salmon smolts did not succeed in getting through Carrigadrohid reservoir or Carrigadrohid Dam in appreciable numbers. Examination of a small number of brown trout showed that they were preying on smolts and that predation by brown trout deserved further investigation.

Approximately 1,614 smolts moved downstream past the dams. 81 fish were recorded as having passed upstream of Iniscarra Dam and only 7 of these made their way upstream past Carrigadrohid Dam.

During 1968, 1,577 pike were removed from the Lee Reservoirs.

The E.S.B. removed 86 salmon from the river for hatchery purposes and planted out 302,000 fry and 10,000 fingerlings in selected parts of the system.

UDN was again present in the river and affected the rehabilitation work. Apart from the normal close season etc. regulations no other restrictions were placed on fishing in 1968.

FRESHWATER CRAYFISH INVESTIGATIONS.—Experiments were carried out with a view to getting information on stocks of freshwater crayfish in various lakes chiefly in the midlands.

There is a big demand for these fish in Sweden. The possibility of developing exports to that country was examined and success will depend to a great extent on the capture of commercial quantities of these fish.

SCIENTIFIC INVESTIGATIONS.—Fuller details of the scientific investigations in the inland fisheries sector are given in *The Inland Fisheries Bulletin* (No. 6), 1969. In addition information is given on the investigations on eels and freshwater crayfish in issues of *Fisheries Leaflets*.

Analyses of the salmon stocks entering the Rivers Owenea, Erne, Moy and Shannon were undertaken during the year. The River Erne again received special attention because of the successful efforts made to rehabilitate the salmon stocks of this river after they had been adversely affected by hydro-electric development. The 1968 escape-

ment amounting to about 8,000 fish must be considered highly satisfactory. The late runs into the rivers flowing into Waterford Harbour and in the Blackwater were investigated during the year. Further material relating to the runs of salmon into Irish rivers was compiled for the ICES/ICNAF Joint Working Party on North Atlantic Salmon (see page 33). An officer of the Department also prepared a report for publication by the Foyle Fisheries Commission on the data collected relating to the catches of salmon in the River Foyle on the subject of the weight division of salmon and grilse.

Carrowmore Lake in the Owenmore system in County Mayo was experimentally netted in October 1968 and it was shown that the lake contained good stocks of salmon. Salmon taken there were transferred to Treanlaur on the Burrishoole system for subsequent stripping. A tributary of the lake was also fished electrically for spawners on an experimental basis.

Tagging of salmon in the open sea at Dooneen Point, Killary Harbour, County Mayo, was carried out for the third year in succession. Only 63 fish were tagged and recaptures were disappointingly low, 5 tags being returned. Salmon kelts numbering 757 were tagged at the various centres in 1968. The large scale tagging programme of previous years was not possible due to the heavy mortality of kelts in both the holding ponds attached to a number of hatcheries and in the rivers themselves due to UDN disease. During the year a report on the results of kelt taggings which have been carried out from 1961 to 1967 was compiled.

This paper was in press at the close of the period under review and will be published in issue No. 5 of *Irish Fisheries Investigations Series A (Freshwater)*. Officers of the Department took part in the salmon tagging programme of the Foyle Fisheries Commission and one of them prepared a report on the results obtained for inclusion in the Commission's Annual Report.

Further progress was made in the studies on the River Boyne with the object of assessing the effect of the proposed drainage scheme on the stocks of fish. Biological investigations on the River Owenea were continued during the year. Certain comparisons were made of conditions in this river system with those in the Trimblestown River, a tributary of the River Boyne in order to assess productivity in acid and alkaline waters. The fecundity of trout in Lough Ea at the head waters of the River Owenea was also investigated.

The two Junior Fellows appointed to undertake a Water Quality Survey of the Rivers Blackwater and Martin, continued their investigations during the year and produced two interim reports of the results which were discussed at meetings held in the University College, Cork, in the spring and late autumn.

A lecturer in the Department of Zoology of University College, Dublin, with the assistance of officers of the Department, conducted a survey of the parasites of Irish freshwater fishes, particularly in relation to the Greenlandic salmon problem, it being thought that it might be feasible to distinguish in Greenlandic waters salmon derived from the two sides of the Atlantic by means of their parasitic fauna.

Extensive feeding trials on rainbow trout were undertaken at the Glen of Aherlow fish farm with two proprietary brands of dry food pellets and fish offal. The trials were interrupted in the beginning of the year by restrictions imposed in relation to the outbreak of Foot and Mouth Disease in Great Britain but within certain limitations the trials did produce useful information. Regular visits were paid to other fish farms throughout the year.

Material was collected for investigations into salmon disease and pesticide residues in Irish freshwater fishes. Attention was also paid to the River Lee in connection with a rehabilitation scheme.

The staff of the Fisheries Division continued to give advice on fishery management problems to the general public, to read fish scales and identify fish for the public and the Irish Specimen Fish Committee, of which two members of the Department's staff are members.

The Department's Inspector and Scientific Adviser acts as adviser to the Foyle Fisheries Commission and as Director of Research to the Salmon Research Trust of Ireland, Inc.

Three graduates holding studentships in Fisheries Science during the year conducted investigations on

1. The Chironomid fauna of Irish rivers and lakes;
2. Freshwater eels of the Boyne system and
3. Pesticide residues in Irish freshwater fishes.

ENGINEERING.—*Salmon disease investigation installations:*—The maintenance and improvement of existing facilities and the provision of new ones needed by this Department's Veterinary Research Officers in connection with the investigation of fish diseases, particularly the salmon disease, continued to receive priority in the course of this year and much time was occupied in these activities. In addition, advice on suitable installations and other facilities was supplied on request to a number of University Faculties who are also engaged in investigations on particular aspects of fish diseases as part of the broad programme of investigations at present under way.

A self-contained mobile laboratory unit designed in the Department came into commission. This unit permits detailed investigation of fish diseases wherever an outbreak may occur.

Certain building developments posed a threat to the water supply of the tank units already installed at Abbottstown Veterinary Research Laboratory and steps were taken to avert this. Arrangements were made to provide a supply of water from a well to ensure against interference from outside sources in future.

The Department's Engineer, at the invitation of Professor Dr. Pietro Ghittino visited the Centro per Lo Studio Delle Malattie dei Pesci in Turin, studied facilities for fish disease investigations there and discussed with Professor Ghittino the application of these and comparable devices to work of this nature in Ireland.

Hydro-Electric Development:—The various hydro-electric installations were kept under observation and the effects of their operations on fish life observed. The arrangements made in 1966 to expedite the safe passage downstream of smolts at Iniscarra Dam on the River Lee were once more implemented in the 1968 season, but the count of smolts obtained in this way was disappointing. The number counted in 1968 was 1,614, compared with 500 in 1967, 1,179 in 1966 and 17,000 in 1965. It is becoming clear that alternative measures will be needed to restore the run of salmon in this river.

The E.S.B. have to date been unable to instal a fish counter in the fish pass at Cliff Power Dam on the River Erne, due apparently, to the large amount of debris in the water. This debris makes it difficult to clean and maintain the screens which are used in the counting arrangement. Otherwise, the electronic counting device would appear to be adequate for the purpose required.

Thermal Power Stations:—Attention continued to be paid to the possible effects on fishery interests of the construction of the thermal power stations at Great Island, Pigeon House and Tarbert. As regards Great Island, there were fewer reports of fish being drawn into the intakes as compared with 1967. Due to shortage of staff, it was not found possible to carry out a sustained detailed investigation of the problem in 1968.

In some localities, construction work in connection with the building of these power stations has been causing some difficulties to traditional methods of salmon netting in the vicinity of the power stations and there have been discussions with the various parties concerned to advise on remedial measures where these are necessary.

Arterial Drainage:—Work continued on the major schemes on the Rivers Moy, Inny, Killimor, Deel and Corrib/Headford. The progress of the work on these rivers was kept under constant supervision and there were consultations with the Office of Public Works to ensure that all practicable steps would be taken to safeguard the fishery

interest. As the work on the River Deel was nearing completion, a detailed programme was drawn up for the rehabilitation of spawning areas and the provision of angling pools so as to restore conditions to those which existed before the drainage started. The Office of Public Works have agreed to implement the works specified. Plans for the drainage of the River Boyne were brought to the final stages of preparation and the Office of Public Works advised in detail of the various protective provisions needed in the fishery interest. Arrangements were made with the Office of Public Works, for drainage to be carried out in individual sub-catchments, as far as possible and in a predetermined order in single stages. This would preserve the maximum area of spawning and nursery ground each year during the progress of the scheme. It is also proposed to use an electric fish barrier of the type developed by Fisheries Division, at the entry to each drainage sub-system. There were further consultations about the scheme of drainage for the River Maigue and the Office of Public Works were advised of additional works necessary for the preservation of the fisheries. Outline proposals for the drainage of two minor catchments were received and examined and the Office of Public Works notified of requirements in the fishery interests.

Representations were received from a number of angling associations about improvement works necessary in certain completed drainage schemes areas. Remedial action was discussed with the Office of Public Works in these cases. In some instances restocking with under-yearling salmon and fingerling brown trout was found necessary to restore pre-drainage conditions.

Particular attention was paid to the Owenriff River, one of the important salmon and brown trout spawning tributaries, which forms part of the Corrib/Headford drainage scheme.

The detailed survey of the coarse fishing interests in the lakes and rivers of the upper catchment of the River Erne was continued with the co-operation of the Inland Fisheries Trust who provided the necessary staff to carry it out. The Commissioners of Public Works agreed to pay the cost incurred by the Trust in this operation.

Investigation of Fish Movements:—During the period 3rd March to 15th June, 1968, inclusive, 74,004 smolts were captured in the smolt trap at the Galway Sluice Barrage. The maximum number of smolts taken from the trap in one day was 16,000 on the 2nd May. This number was a marked improvement on the catch obtained in 1967 and was attributed, in part, to conditions of flow at the sluice barrage, where low river discharge retards the escape of water through the barrage. This in time allows larger numbers of smolts into the water which feeds the mill race where the smolt trap is located. Other fish taken in the trap were 559 salmon kelts, 64 sea trout, 16 brown trout, 71 eels, 2 perch, 2 pike and 9 lamprey eels. No kelts were tagged on release from the holding ponds at Cong Hatchery this year.

The numbers of fish recorded as passing through the electronic adult salmon counters which the Department has provided at the sites under, were as follows:—

River	Location	Total Count	Daily Max.	Date
Corrib	Galway	32,009	2,250	22/23 June
Bunree	Bunree	467	105	14/15 October (part of run only)
Liffey	Island-bridge	304	21	30/31 July do.
Inagh	Ennis-tymon	345	64	28/29 December
Blackwater	Clondulane	2,693	227	10/11 October (part of run only)

Work continued on the investigations into the relation between fish movement and variations in water level. A continuous temperature recorder was installed at Galway Sluice Barrage and a continuous water level recorder was installed in the river channel downstream from the barrage to obtain information about the relationship of water flow to angling results.

Fish Culture Installations:—The salmon hatchery and rearing station at Cong, Co. Mayo, operated successfully during the season and under-yearling fish were distributed from it as follows:—

Office of Public Works for restocking River Moy	...	100,000
Limerick Board of Conservators for restocking River Deel	...	20,000
Corrib catchment	...	27,000

In view of the need for increased numbers of young salmon for restocking rivers affected by the salmon disease, investigations were made of possible sites for additional rearing units and a provisional site at Cong, Co. Mayo, was selected for more detailed study.

Owing to the difficulty of getting supplies of salmon from abroad a proposal to purchase salmon caught in the commercial salmon traps and to hold them for stripping was investigated. It is argued that in this way, there is no interference with the normal escapement of fish to upstream fishing waters and spawning grounds. A provisional site was selected as a possible holding pond for these fish and a detailed examination of the practicability of the proposal is being investigated.

Rainbow Trout Farming:—Existing fish farm installations were kept under observation and proposals for the extension of one unit were investigated in detail and the owner advised on the matter. Two

proposals for new fish farm units were examined and the findings conveyed to the interested people. A design was prepared for one new unit and the sponsor was provided with professional advice in the course of its construction.

During the year the Department's Engineer, on the invitation of Professor Dr. Pietro Ghittino, paid a visit to Northern Italy and studied the system of fish farming practised there.

River Improvement Schemes:—Three new Supervisors were recruited to the staff to assist in river improvement schemes being carried out by the various Boards of Conservators. A training course on various aspects of fishery requirements was organised for these officers. The officers have been assigned as follows: one in Kerry, one in Galway and one in Donegal.

A programme of development was drawn up for the Owengarve River in Mayo and for the Glengarriff River in Co. Cork. As well a number of suggestions for other rivers were investigated in detail. A proposal that certain work be carried out on the Glenaniff River, a tributary of Lough Melvin, to increase the spawning area was investigated in detail and costings prepared for the project. A number of suggestions for improvements to other fishing rivers were also investigated.

Eel Fishery Development:—Existing eel fishing installations were inspected throughout the year to ensure compliance with the fishery laws in connection with the issue of temporary authorisations. A number of proposals for eel fishery development submitted by private interests were investigated and the sponsors advised, on the prospects.

Fish Passes:—During the year fish passes to the Department's design were constructed at Breaghmore Weir on the Camcor River by the Offaly County Council; at the weir at the outlet from Castlebar Lakes by the Office of Public Works; at Bangor Erris Road Bridge by the Mayo County Council and at Butler's Weir on the River Dargle at Bray by the Wicklow County Council. The fish pass built at Bangor Erris Bridge has been built into the paving of the invert of the bridge which had become a serious obstruction to the passage of fish. This problem of fish being obstructed by paved inverts of bridges continues to arise despite the steps taken to bring the matter to the attention of the various local authorities with the co-operation of the Department of Local Government.

The Clifden Fish Pass continues to work satisfactorily but needs inspection at regular intervals to ensure the regular removal of gravel. An investigation into the movement of fish over Sion Mills Weir on the River Mourne has been undertaken on behalf of the Foyle Fisheries Commission. Similar investigation is also continuing into Ballyartella Weir Fish Pass on the Nenagh River. Natural obstructions in a number of rivers in the Cork District which prevent fish from reaching large areas of upstream spawning grounds were examined and arrangements made to deal with these.

Application of Electricity to Inland Fisheries:—Applied research with this object in view continued at the State Salmon Hatchery at Glenties in Co. Donegal, with particular reference to electric fishing apparatus, electronic fish counting gear and electric barriers for the diversion of fish from selected areas.

Electric Barriers:—A special low voltage electric fish barrier was placed in commission once again at Cork Waterworks Weir during the run of adult salmon. Observations by officers of the Cork Board of Fishery Conservators once again confirmed that the barrier was successful in excluding fish from the pumping station turbine draft tubes. At the conclusion of the run of fish at Cork Waterworks Weir this energising unit was transferred to a site at Glencullin Bridge on the Glencullin River, a tributary of Carrowmore Lakes in Co. Mayo. In this case horizontal electrodes were placed on the paved invert of the bridge instead of vertical electrodes as at Cork and these were energised. This arrangement proved very effective in preventing the movement of salmon upstream and holding them downstream for capture and stripping of ova for hatchery operations.

Electronic Salmon Counters:—There was further work of development on the electronic salmon counters and the existing installations on various rivers were maintained.

Electro Fishers:—Further refinements were made to the solid state electro-fishing unit reported on last year.

Smolt Diversion:—Once again it has to be reported that the results obtained in the use of electricity for the diversion of smolts was disappointing. Work is continuing on the problem.

Electricity and Eels:—The results of the investigations to date and an account of the practical applications resulting therefrom were incorporated in a paper entitled "The use of Electricity in the Exploitation of Eels" by P. J. Sharkey. This was presented to EIFAC Sub-Commission I—Biology and Exploitation of Eels at the meeting held in Rome in May.

Polluting Effluents:—In accordance with the decision at the 6th meeting of EIFAC in Rome in May a Symposium on Pollution Problems in Member Countries will be held immediately before the 7th Meeting. All interested bodies in Ireland were invited to attend a meeting with the object of agreeing and arranging for the preparation of contributions for this Symposium in 1970.

Water Quality Investigations:—Work continued on the collection of data about river flows in the Blackwater and Martin systems in

connection with the Water Quality Research Project at present under-way in these river systems. Through the good offices of Professor Dooce of University College, Cork, a number of final year Engineering Students were assigned to assist in the investigations.

Miscellaneous: The Engineer continued to act as Fishery Engineering Consultant to the Salmon Research Trust of Ireland Incorporated and in this capacity he designed an installation for the capture of adult salmon on their migration upstream and smolts on their passage downstream: he also advised on the construction of this unit under contract by a firm of Civil Engineering contractors.

He also continued to act as Council Member of the Inland Fisheries Trust and during the year was made a member of the Supervisory Group on Methods of Excluding Fish from Water Intakes on its transfer to the control of the Natural Environment Research Council of Britain. He attended a number of meetings of this Body held in London.

He continued to act as Fisheries Engineering Consultant to the Foyle Fisheries Commission.

The Engineer attended the EIFAC Congress in Rome. He also attended the Challenger Society Meeting held in Glasgow at which the subject of fish farming in the sea was dealt with.

Two of the Assistant Engineers attended the Salmon Research Group Meeting in London, at which was discussed fish movements in relation to variations in water flow and ancillary factors. One of the Assistant Engineers visited the Scientific Branch of the Greater London Council to study the procedure followed in monitoring and controlling pollution.

VISITORS:—Dr. A. Chmielewski, Politechnika Posnanska, Poland, who has been engaged in a research assignment at the North of Scotland Hydro-Electric Board Laboratory at Pitlochry, Scotland, visited Ireland and discussed development with particular reference to electric fish screens.

Dr. Steevens of the Ministry of Agriculture, Fisheries and Food and Mr. C. B. Webber, Ministry of Public Works, England, visited the fish disease installations at Abbotstown Veterinary Research Laboratory.

FOYLE FISHERIES COMMISSION.—The Annual Report of the Foyle Fisheries Commission for the year ended 30th September, 1968, relates the Commission's activities during the year.

Runs of salmon in the Foyle River system were less than in the previous year and the catch by commercial engines (122,129) was down on the 1967 figure (127,643).

	Salmon		Sea Trout		Total	
	No.	lb.	No.	lb.	No.	lb.
Nets ...	122,129	816,177	925	1,229	123,054	817,406
Rods ...	915	8,117	2,128	1,807	3,043	9,924
Total	123,044	824,294	3,053	3,036	126,097	827,330

The drought conditions which prevailed throughout most of the Summer months restricted escapement of salmon into the freshwater of the Foyle System. The spawning position was however satisfactory.

The Commission made the following regulations during the year:—

- (i) Foyle Area (Weekly Close Time) Regulations, 1968.
- (ii) Foyle Area (Close Season for Angling) (Mourne System) Regulations, 1968.
- (iii) Foyle Area (Rivers Finn and Foyle) Close Season for Angling Regulations, 1968.
- (iv) Foyle Area (Licensing of Fishing Engines) (Amendment) Regulations, 1968.
- (v) Foyle Area (River Finn Angling Authorisation) Regulations, 1968.
- (vi) Foyle Area (Suspension of Netting) Regulations, 1968.
- (vii) Foyle Area (Dealers' Registers) Regulations, 1968.

A review of the incidence of salmon disease (UDN) in the Foyle river system during 1968 showed that apart from the stocks of the Rivers Finn, Roe and Faughan, the majority of fish in other tributaries were only slightly affected.

The Commission's hatcheries produced 399,000 salmon fry which were planted out in various rivers.

During the year the Commission prosecuted 59 persons for a total of 123 offences and convictions were obtained in respect of 102 of the offences. The operation of highly mobile patrols throughout the length of the River Foyle was an outstanding success.

INLAND FISHERIES TRUST INCORPORATED.—The Annual Report of the Inland Fisheries Trust for 1968 outlines the progress made by the Trust during the year in their programme for the development of brown trout, coarse fish and sea angling. The increased Grant-in-Aid to the Trust (£180,000 as compared with £120,000 in 1967) enabled them to intensify their programme and buy a considerable amount of equipment. The full-time work force in the field increased.

Efforts to control predators (pike and perch) continued and the results show a good reduction in the average size of the pike caught, which is a very satisfactory trend. More than 27 tons of pike and 32 tons of perch were removed from lakes and rivers being developed as trout fisheries, as well as large quantities of perch fry and spawn.

Young trout were cropped from nursery streams and transferred to the trout lakes. Contour surveys were carried out on most of the lakes being developed as brown trout fisheries and work was started on the systematic improvement of brown trout spawning and nursery areas.

Substantial numbers of brown trout fingerlings and fry were produced at the Trust's rearing stations and released into waters being developed.

Development of coarse fishing was intensified. Surveys of 71 coarse fishing waters were carried out at 22 centres during the year. Development work was undertaken on waters at 13 centres and maintenance work on waters which had been developed in 1967.

Surveys and investigations of sea angling were continued particularly in Counties Clare, Mayo and Donegal.

SALMON RESEARCH TRUST OF IRELAND INCORPORATED.—A full account of the work done by the Salmon Research Trust for 1968 is contained in the Trust's Annual Report. The programme of investigations into the rearing of salmon of known ancestry and of salmon and sea-trout hybrids was continued during the year.

Feeding and rearing trials were carried out with different types of pellets, also experiments in tagging fish, preservation of salmon milt and rearing equipment. Further experiments are planned for 1969.

The Peat Silt Research Group, continued its work on the effects of peat silt on fish life and a full report of the biological work will be published in their 1969 Annual Report.

Biological survey work was begun on the Burrishoole Fishery to study the invertebrate fauna. This project is being continued.

MANAGEMENT OF STATE FISHERIES.—Fisheries Division managed one hundred and twenty-seven State-owned fisheries in 1968 and the amount received in rents was £4,155 compared with £3,830 in 1967.

Twenty-five of these fisheries were advertised for letting during the year.

INTERNATIONAL AND OTHER CONFERENCES.

(1) **INTERNATIONAL COUNCIL FOR THE EXPLORATION OF THE SEA.**—As mentioned in the Sea Fisheries section of this Report the annual

conference of this body was held in Copenhagen in October, 1968. The Anadromous and Catadromous Fish Committee had an important programme of meetings which were attended by the Department's Inspector and Scientific Adviser, the Inspector of Fisheries on the inland fisheries side and the Biologist to the Salmon Research Trust of Ireland. The Department's Inspector and Scientific Adviser also attended a meeting of the Joint Working Party on North Atlantic Salmon established by the Council and the International Commission for the North-West Atlantic Fisheries held in London in May and he and the Inspector of Fisheries also attended a further meeting of the same Working Party held in conjunction with the annual meeting in Copenhagen. As a result of these meetings a second report was prepared for publication in the Council's *Cooperative Research Reports* Series A. The Biologist to the Salmon Research Trust opened discussions on salmon rearing techniques.

(2) **ANNUAL CONFERENCE OF THE SALMON AND TROUT ASSOCIATION.**—This Association holds an annual conference in London to provide an opportunity for discussion of problems in relation to salmon and trout. The 1968 conference was attended by the Department's Inspector and Scientific Adviser and the Biologist of the Salmon Research Trust of Ireland, who contributed a paper on the work of the Trust.

(3) **INLAND FISHERIES RESEARCH GROUP.**—This informal group was established in 1966 to provide an annual meeting of those persons engaged in inland fisheries research in Ireland. In April, 1968, the Group met for the fourth time under the Chairmanship of Mr. T. Murphy, Director of the Department's Veterinary Research Laboratory in which research work into UDN disease in salmon is being conducted. Representatives of the Universities, the Inland Fisheries Trust Inc., the Electricity Supply Board and of the Department (both the Fisheries Division and the Veterinary Research Laboratory) were present. Representatives from Great Britain were also present. The main part of the meeting was devoted to the UDN disease.

(4) **SALMON RESEARCH GROUP.**—This group which operates under the aegis of the British National Environmental Research Council was originally established to provide an opportunity for persons engaging in research on salmon to meet and discuss their problems from time to time. During 1968 three meetings of the Group were held. The first took place in London in March and was attended by the Inspector of Fisheries on the inland fisheries side and two Assistant Engineers. This meeting considered the movements of freshwater fish in relation to freshwater flows. The second meeting took place in Aberdeen in July and was attended by the Inspector and Scientific Adviser and the Inspector of Fisheries on the inland side. The subject discussed was "Drift netting for salmon at sea" and the Department's representatives provided information on the Irish drift net fishery. The meeting was concluded with a visit to the fish disease field station near Montrose and to the fishing installations, rearing

stations, etc. operated by the local commercial fishing company there. The third meeting was held in London and was attended by the Inspector and Scientific Adviser and the Inspector of Fisheries on the inland fisheries side. The meeting discussed the "high seas fishing for salmon".

(5) FISHERIES SOCIETY OF THE BRITISH ISLES.—This newly-formed Society held its first scientific meeting in London in April, 1968, at the rooms of the Zoological Society of London. The Department's Inspector and Scientific Adviser by invitation read a paper on the *Movements of salmon in Irish waters*. A wide range of other papers was also read.

(6) EUROPEAN INLAND FISHERIES ADVISORY COMMISSION.—The commission held its fifth meeting at Rome from 20th to 24th May, 1968. Delegates from twenty member countries and observers from two countries and seven International Organisations attended the meeting. The Irish delegation consisted of three officers of the Department, one representative of the Inland Fisheries Trust and one of the Electricity Supply Board. Matters of particular interest dealt with were:—

- (1) Fishery Biology and Management which included a discussion on the economic aspects of sport fisheries.
- (2) Fish Culture and Disease.
- (3) Fish and Polluted Water.

Included in the matters decided to be the subject of studies in the intersessional period were further studies on water quality criteria. It was also decided to hold a Symposium before the 1970 Session on the nature and extent of pollution controls affecting fisheries, and it was recommended that preparatory meetings be held in member countries with a view to co-ordinating production of material for presentation at the Symposium. A meeting was held in Dublin on 30th October, 1968, and was attended by a total of thirty-six persons representing bodies and organisations in Ireland interested in the subject of water pollution. On the motion of Ireland, it was agreed that at the Session following the Symposium the Commission should also take note of the measures in force for the control of pollution in various countries and consider these in relation to the gravity of the pollution problem as affecting fisheries.

LEGISLATION—Particulars of Statutory Instruments relating to Inland Fisheries made during the year are included in Appendix No. 22.

NEIL T. BLANEY,

Minister for Agriculture and Fisheries.

29 October, 1969.

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APPENDIX No. 1

Quantity and Value of Sea Fish (excluding Salmon) returned as landed in 1967 and 1968.

Kinds of Fish	QUANTITY		VALUE	
	1968	1967	1968	1967
	cwt.	cwt.	£	£
Soles	3,069	3,266	67,145	70,945
Brill	1,708	1,663	16,627	16,767
Turbot	1,611	1,885	16,118	18,464
Plaice	42,720	28,938	308,286	224,524
Dabs	3,322	3,617	8,311	9,502
Megrims	4,638	4,536	13,143	14,249
Other Flat Fish	5,009	4,271	15,564	13,937
Ray/Skate	26,972	23,124	117,624	96,073
Cod	62,531	57,610	210,064	208,492
Haddock	21,463	23,968	77,951	89,469
Hake	1,490	2,548	10,341	23,232
Whiting	106,667	120,981	198,791	236,567
Pollack	12,912	13,199	30,750	31,104
Other Round Fish	19,129	23,832	21,032	26,469
Total Demersal	313,241	313,438	1,111,747	1,079,794
Herrings	452,160	465,606	496,753	499,280
Pilchards	48	681	31	293
Mackerel	42,590	44,196	48,526	51,163
Sprats	28,117	9,728	11,694	5,619
Total Pelagic	522,915	520,211	557,004	556,355
TOTAL WET FISH	836,156	833,649	1,668,751	1,636,149
	Nos.	Nos.		
Lobsters	508,766	495,017	291,642	224,257
Crawfish	124,648	129,653	132,006	87,592
Crabs	349,418	75,816	10,572	1,804
Escallops	300,472	199,839	11,317	7,808
Oysters	1,540,122	1,371,825	34,103	29,852
	cwt.	cwt.		
Dublin Bay Prawns	29,393	17,289	119,013	70,613
Mussels	47,867	23,272	25,193	12,571
Periwinkles	45,269	39,629	97,941	73,860
Other Shellfish	7,881	3,767	13,243	8,266
Total Value Shellfish	—	—	735,030	516,623
TOTAL VALUE ALL FISH	—	—	2,403,781	2,152,772

APPENDIX No. 2

Comparison of the Average Price per cwt. of various kinds of Sea Fish for the years 1961—1968

	1961	1962	1963	1964	1965	1966	1967	1968
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Soles	15 6 5	16 9 2	17 15 4	18 14 7	22 11 1	23 4 11	21 10 3	21 17 7
Brill	10 2 3	10 4 4	11 0 11	10 15 10	10 13 10	10 17 4	10 1 8	9 14 8
Turbot	10 0 0	10 0 8	10 13 11	10 0 11	10 7 3	10 13 9	9 15 11	10 0 1
Plaice	8 5 1	8 18 11	7 14 10	7 7 2	7 12 5	7 18 4	7 15 1	7 4 4
Dabs	2 15 3	2 13 3	2 13 11	2 10 4	2 14 3	2 12 6	2 12 3	2 10 0
Megrims	3 8 3	3 6 6	2 17 4	2 10 11	3 8 0	3 16 0	3 2 10	2 16 8
Ray/Skate	3 7 5	3 11 10	3 13 7	3 13 2	4 1 7	4 0 5	4 3 2	4 7 3
Cod	6 1 6	6 12 1	5 13 3	3 17 4	4 1 8	3 18 11	3 12 5	3 7 2
Haddock	5 5 8	6 7 1	3 13 4	2 9 3	3 1 11	3 13 0	3 14 9	3 12 7
Hake	6 0 9	7 17 11	7 8 2	5 19 4	6 12 1	10 4 1	9 2 4	6 18 10
Whiting	1 19 11	1 19 4	2 1 1	1 17 1	1 19 1	2 3 5	1 19 1	1 17 3
Pollack	2 15 1	3 3 2	3 10 5	3 4 4	2 11 10	2 13 5	2 7 2	2 7 8
Herrings	0 16 9	1 7 9	1 3 4	0 19 4	1 3 11	1 7 3	1 1 5	1 2 0
Pilchards	0 7 8	0 8 7	3 12 10	2 14 3	4 0 6	0 11 0	0 8 7	0 12 11
Mackerel	1 11 10	2 7 8	2 5 1	1 9 7	1 2 10	1 11 4	1 3 2	1 2 9
Sprats	0 7 3	0 7 2	0 8 8	0 8 3	0 8 3	0 8 3	0 11 7	0 8 4

N.B.—“Average price” as shown in this table represents total value divided by total weight for each kind of fish, year by year. It does not purport to take direct cognizance of any abnormal rise or fall in price attributable to a seasonal glut or shortage of a particular kind of fish.

APPENDIX No. 3

Value of Landings of Sea Fish (excluding Salmon) at ports at which the value of such landings exceeded £20,000 in 1968

Port	Total Value	Demersal	Pelagic	Shellfish
	£	£	£	£
1. Killybegs ...	316,153	141,349	172,983	1,821
2. Howth ...	245,514	238,263	1,812	5,439
3. Dunmore East ...	214,266	17,023	186,096	11,147
4. Castletownbere ...	132,358	71,918	29,455	30,985
5. Dun Laoghaire ...	104,481	100,934	1,195	2,352
6. Dingle ...	95,652	70,654	10,606	14,392
7. Greencastle ...	76,421	75,896	—	525
8. Skerries ...	74,994	36,295	990	37,709
9. Burtonport ...	71,563	22,370	34,523	14,670
10. Kilmore Quay ...	71,380	49,982	678	20,720
11. Galway ...	68,227	53,553	2,315	12,409
12. Carna ...	58,579	160	30	58,389
13. Sligo ...	53,571	2,291	49,920	1,360
14. Cobh ...	46,083	5,953	39,062	1,068
15. Valentia Harbour ...	41,615	14,550	3,419	23,646
16. Union Hall ...	41,212	28,161	2,708	10,343
17. Clogherhead ...	40,851	26,240	1,480	13,131
18. Clifden/Cleggan ...	39,106	535	10	38,561
19. Schull ...	33,955	19,817	2,496	11,642
20. Arklow ...	28,432	27,462	970	—
21. Fenit ...	27,870	—	—	27,870
22. Balbriggan ...	25,727	10,372	82	15,273
23. Achill ...	23,241	14,304	—	8,937
24. Blacksod ...	21,532	—	—	21,532

APPENDIX No. 4

Imports and Exports of Fish and Fishery Products in 1968 (as compared with 1967)

	Quantity		Value	
	1968	1967	1968	1967
	cwt.	cwt.	£	£
I.—IMPORTS :				
Fish, fresh, chilled or frozen ...	7,336	9,414	79,312	70,056
Fish, cured, not in airtight containers ...	40,723	27,338	408,144	194,173
Fish and fish preparations in airtight containers ...	26,072	25,434	744,857	617,902
Other fish and fish preparations ...	12,308	15,548	230,950	306,539
TOTALS ...	86,439	77,734	1,463,263	1,188,670
II.—EXPORTS :				
Fish, fresh, chilled or frozen:				
Salmon ...	19,847	20,228	755,339	752,123
Herrings ...	152,257	79,421	228,071	155,476
Freshwater Eels ...	2,856	2,856	68,298	63,191
Other Fish ...	22,388	24,108	172,808	236,835
Fish dried, salted or smoked not in airtight containers ...	194,348	170,536	407,391	359,720
Shellfish fresh, chilled, frozen, salted or dried	94,468	69,073	901,727	642,231
Other fish and fish preparations ...	6,607	5,387	143,939	103,731
TOTALS ...	492,771	371,609	2,677,573	2,313,307

APPENDIX No. 5

HERRING FISHING, 1968

County	Ports at which more than 500 cwt. were landed	Total Quantity cwt.	Value £
Louth ...	—	20	30
Dublin ...	—	355	671
Wicklow ...	—	85	205
Wexford ...	—	340	770
Waterford ...	Dunmore East ...	130,550	186,722
Cork ...	Youghal, Cobh, Kinsale, Union Hall, Castletownbere, Durrus ...	53,780	59,605
Kerry ...	Dingle ...	2,335	3,239
Clare ...	—	—	—
Galway ...	Galway ...	514	975
Mayo ...	—	—	—
Sligo ...	Sligo ...	73,308	49,920
Donegal ...	Killybegs, Burtonport, Kincasslagh, Port / Inver / Trabane ...	190,873	194,616
	TOTALS ...	452,160	496,753

APPENDIX No. 6

MACKEREL FISHING, 1968

County	Ports at which more than 250 cwt. were landed	Total Quantity cwt.	Value £
Louth	—	75	210
Dublin	Skerries, Howth, Dun Laoghaire	1,459	3,438
Wicklow	Arklow	405	1,215
Wexford	Kilmore Quay	534	1,413
Waterford	Ballinagoul	658	1,549
Cork	Ballycotton, Kinsale, Union Hall, Schull, Castletownbere	6,490	9,500
Kerry	Valentia Harbour, Dingle	6,654	10,408
Clare	—	495	1,069
Galway	Galway	780	2,170
Mayo	—	1,100	2,350
Sligo	—	3	7
Donegal	Killybegs	23,937	15,197
TOTALS	—	42,590	48,526

APPENDIX No. 7

REGIONAL DISTRIBUTION AND CLASSIFICATION OF FISHING CRAFT AND OF PERSONNEL ENGAGED IN FISHING IN 1968

Coast	How Engaged	Men	Total Vessels	MOTOR VESSELS						Boats propelled by outboard engines, sails or oars	
				Gross Tons						18' Keel and upwards	Less than 18' Keel
				Over 75	51—75	26—50	16—25	11—15	10 and under		
EAST (Omeath to Carnsore Point)	Solely	456	129	6	15	49	6	—	18	34	1
	Partially Laid-up	249	85	—	—	—	—	—	5	54	26
	TOTALS	705	218	6	15	52	7	—	23	88	27
SOUTH (Carnsore Point to Loop Head)	Solely	493	158	1	12	52	5	12	57	19	—
	Partially Laid-up	809	331	—	—	—	—	2	70	183	76
	TOTALS	1,302	493	1	13	54	5	15	127	202	76
WEST (Loop Head to Erris Head)	Solely	239	264	—	2	13	4	1	121	88	35
	Partially Laid-up	1,344	292	—	—	—	—	—	41	131	120
	TOTALS	1,583	558	—	2	14	5	1	162	219	155
NORTH (Erris Head to Moville)	Solely	499	294	7	9	18	18	6	132	89	15
	Partially Laid-up	1,354	255	—	—	—	—	—	67	122	66
	TOTALS	1,853	551	8	9	18	18	6	200	211	81
TOTALS (All Coasts)	Solely	1,687	845	14	38	132	33	19	328	230	51
	Partially Laid-up	3,756	963	—	—	—	—	—	183	490	288
	TOTALS	5,443	1,820	15	39	138	35	22	512	720	339

APPENDIX No. 8

TRAWLING AND SEINING, 1968

Port or Locality	Number of men engaged	Number of boats engaged	Tonnage of Motor Boats			Fishing Period
			Not exceeding 10 tons	Over 10 tons	Over 15 tons	
Clogherhead ...	25	6	—	—	6	All year.
Balbriggan ...	32	7	—	—	7	All year.
Skerries ...	40	8	—	—	8	All year.
Howth ...	155	28	—	—	28	All year.
Dun Laoghaire ...	72	16	2	—	14	All year.
Arklow ...	49	13	—	—	13	All year.
Wexford ...	15	3	—	—	3	All year.
Rosslare ...	3	1	1	—	—	All year.
Kilmore Quay ...	70	14	2	—	12	All year.
Duncannon ...	16	5	3	—	2	All year.
Passage East ...	6	2	2	—	—	Autumn and Winter
Dunmore East ...	25	5	—	—	5	All year.
Helvick ...	14	3	—	—	3	All year.
Youghal ...	3	1	1	—	—	All year.
Ballycotton ...	15	5	4	—	1	All year.
Cobh ...	8	4	4	—	—	All year.
Kinsale ...	10	4	3	—	1	All year.
Union Hall and Raheen ...	35	7	—	—	7	All year.
Schull ...	18	4	—	—	4	All year.
Castletownbere ...	70	14	—	—	14	All year.
Ballinskelligs ...	6	1	—	—	1	All year.
Valentia ...	30	6	—	—	6	All year.
Cahiriveen and Portmagee ...	55	11	—	—	11	All year.
Dingle ...	2	1	1	—	—	Summer and Autumn
Liscannor ...	60	12	—	—	12	All year.
Galway and Aran Islands ...	6	2	1	1	—	All year.
Cleggan and Inisboffin ...	24	6	1	—	5	All year.
Achill ...	8	4	4	—	—	Spring, Summer and Autumn
Enniscrone ...	8	2	—	—	2	All year.
Sligo ...	180	29	—	—	29	All year.
Killybegs ...	36	6	—	—	6	All year.
Burtonport ...	4	1	—	—	1	All year.
Dunfanaghy ...	8	2	—	—	2	All year.
Buncrana ...	17	5	2	3	—	Spring, Summer and Autumn
Glengad ...	65	14	—	—	14	All year.
Greencastle ...	1,190	252	31	4	217	
TOTALS ...						

APPENDIX No. 9

STATEMENT OF ACCOUNT IN RESPECT OF REPAYABLE ADVANCES

I. Advances of £408,500 made to the Irish Sea Fisheries Association Ltd. during the period of twenty-one years to 23 April, 1952, for the provision of boats and gear:—

	£
Advances and interest thereon up to 31 March, 1960	566,255
Repayments made to 31 March, 1960	248,281
Amount written off in 1961-62	186,000
Balance of advances to be repaid by a new annuity ...	131,974
	566,255
Instalments of new annuity to accrue up to 1972 ...	160,433
Repayments of new annuity:	
made to 31 March, 1967	86,899
made during year ended 31 March, 1968	13,369
not accrued at 31 March, 1968	60,165
	160,433

II. Advances of £63,215 made to Irish Sea Fisheries Association Ltd. during the period of five years to 23 April, 1952 for purposes other than boats and gear:—

	£
Total repayments to be made including interest ...	85,973
Repayments:	
made to 31 March, 1967	67,204
made during year ended 31 March, 1968	4,278
not accrued at 31 March, 1968	14,491
	85,973

III. Advances of £2,472,563 made to An Bord Iascaigh Mhara during the period of sixteen years to 31 March, 1968, for the provision of boats and gear and other purposes:—

	£
Repayments of principal:	
made to 31 March, 1967	429,698
made during year ended 31 March, 1968	70,569
Principal written off to 31 March, 1968	217,584
Total repaid or written off at 31 March, 1968 ...	717,851
Balance of principal outstanding at 31 March, 1968	1,754,712

APPENDIX No. 10

COASTAL EXTENT OF FISHERY DISTRICTS AND NAMES
OF THE PRINCIPAL RIVERS IN EACH DISTRICT

District	Coastal Extent of District	Principal Rivers
No. 1 Dublin	Most easterly point on Red Island, Skerries, to Wicklow Head.	Liffey Vartry.
No. 2 Wexford	Wicklow Head to Kiln Bay, east of Bannow Bay, Co. Wexford.	Slaney Avoca.
No. 3 Waterford	Kiln Bay, east of Bannow Bay, to Helvick Head, Co. Waterford.	Suir Barrow Nore.
No. 4 Lismore	Helvick Head to Ballycotton Pier, Co. Cork.	Blackwater, Funshion, Bride, Awbeg.
No. 5 Cork	Ballycotton Pier to Crow Head, Co. Cork.	Lee, Owenboy, Bandon, Argideen, Ilen, Mealagh, Owvane, Coomhola, Glengarriff, Adrigole.
No. 7 Kerry	Crow Head, Co. Cork, to Kerry Head, Co. Kerry.	Roughty, Sheen, Finnihey, Blackwater, Sneem, Laune, Flesk, Maine, Caragh, Currane, Cummeragh, Inny.
No. 8 Limerick	Kerry Head, Co. Kerry, to Hag's Head, Co. Clare.	Shannon, Deel, Fergus, Mulcair, Little and Upper Brosna, Inny, Maigue, Feale.
No. 91 Galway	Hag's Head to the sea point of the boundary between the townlands of Keeraunagark South and Banraghbaun South, Co. Galway.	Corrib, Claregalway.
No. 92 Connemara	The sea point of the boundary between the townlands of Keeraunagark South, and Banraghbaun South, Co. Galway, to Slyne Head, Co. Galway.	Ballinahinch, Recess, Cashla, Owengowla, Invermore, Inverbeg, Screebe, Furnace.
No. 101 Ballinakill	Slyne Head to Pigeon Point, Westport Bay, Co. Mayo.	Culfin, Errif, Bundo- dorragea, Dawros, Carrowniskey, Bun- owen (Louisburgh).
No. 102 Bangor	Pigeon Point to Benwee Head, Co. Mayo.	Newport, Burrishoole, Owenduff, Owengarve, Owenmore, Glenamoy.
No. 11 Ballina	Benwee Head to Coonamore Point, Co. Sligo.	Moy, Cloonaghmore (Palmerston), Easkey.

District	Coastal Extent of District	Principal Rivers
No. 12 Sligo	Coonamore Point to Carrickgarve, Co. Sligo.	Ballisodare, Garavogue (Sligo), Bonet, Drum- cliff.
No. 13 Ballyshannon	Carrickgarve to Rossan Point, Co. Donegal.	Erne, Bundrowes, Bundo- duff, Eske, Eaney Water, Oily, Glen.
No. 14 ¹ Letterkenny	Rossan Point to Malin Head, Co. Donegal.	Owenea, Gweebarra, Gweedore (Crolly), Clady, Lackagh, Len- non, Crana.
No. 17 ² Dundalk	Carlingford Lough to Clogherhead, Co. Louth.	Fane, Dee, Glyde.
No. 17 ¹ Drogheda	Clogherhead to the most easterly point on Red Island, Skerries, Co. Dublin.	Boyne, Blackwater, Deel.

Note—The area comprised in the former No. 14² or Merville District was, by the Foyle Fisheries Act, 1952, incorporated in the Foyle Area which is administered by the Foyle Fisheries Commission.

APPENDIX No. 11

Quantity and Value of all Salmon and Sea Trout taken in 1966, 1967 and 1968 by Instruments of Capture.

SALMON						
	1968	1967	1966	1968	1967	1966
Instruments	lb.	lb.	lb.	£	£	£
Total for all engines	2,702,248	2,720,930	2,326,422	699,428	665,242	684,825
Total for rod and line	251,432	267,809	301,575	81,645	83,929	106,698
Total for drift nets	1,040,356	1,015,738	744,023	259,302	207,694	192,997
Total for draft nets	1,059,227	1,071,341	961,428	260,257	266,224	279,645
Total for stake nets, weirs, etc.	351,233	366,042	319,396	98,224	107,395	105,485

SEA TROUT						
	1968	1967	1966	1968	1967	1966
Instruments	lb.	lb.	lb.	£	£	£
Total for all engines	124,679	128,980	86,350	22,982	21,075	16,522
Total for rod and line	69,584	68,078	63,274	12,541	11,497	12,175
Total for drift nets	8,147	8,484	1,975	1,639	1,577	354
Total for draft nets	45,898	51,295	20,202	8,598	7,835	3,806
Total for stake nets, weirs, etc.	1,050	1,123	899	204	166	187

This Appendix does not include returns from the former Merville District.

APPENDIX No. 12

Quantity and Value of Salmon taken in 1966, 1967 and 1968 by Fishery Districts.

Fishery District	*	Quantity			Value		
		1968 lb.	1967 lb.	1966 lb.	1968 £	1967 £	1966 £
Dublin	... R N	3,437 19,979	4,399 15,981	5,033 12,017	1,356 4,697	1,920 4,039	2,479 4,217
Wexford	... R N	4,686 25,297	6,854 27,752	23,980 31,633	2,037 6,393	2,746 10,479	9,619 12,145
Waterford	... R N	40,609 259,843	41,284 303,342	53,168 275,709	13,199 64,821	13,298 69,612	17,708 77,334
Lismore	... R N	7,190 133,165	8,920 169,564	9,887 189,680	2,396 34,755	2,399 48,541	3,238 62,412
Cork	... R N	17,317 60,730	15,742 71,030	11,668 85,454	5,685 15,249	5,166 19,293	4,393 25,696
Kerry	... R N	33,876 186,355	30,056 192,726	39,188 220,569	10,919 46,768	9,119 38,746	13,702 55,839
Limerick	... R N	28,412 280,373	34,094 312,546	40,590 242,633	8,970 71,629	10,195 80,651	14,629 73,474
Galway	... R N	15,081 93,269	14,787 94,916	8,143 65,569	4,780 29,559	3,926 30,169	2,761 25,901
Connemara	... R N	6,761 —	5,974 —	2,790 —	2,141 —	1,484 —	886 —
Ballinakill	... R N	5,107 26,885	5,603 26,190	2,869 7,680	1,617 6,783	1,435 4,415	1,009 1,802
Bangor	... R N	7,532 109,369	7,859 52,240	12,031 43,096	2,358 25,521	2,290 10,637	4,408 9,789
Ballina	... R N	21,585 422,601	25,182 372,889	14,969 276,110	6,926 105,248	7,185 78,249	4,512 68,880
Sligo	... R N	8,741 69,565	8,849 47,188	8,600 42,119	2,806 16,879	2,928 10,385	2,945 10,726
Ballyshannon	... R N	6,711 159,259	8,715 156,559	7,246 95,453	2,108 39,270	3,044 35,630	2,695 24,129
Letterkenny	... R N	15,158 437,097	15,627 430,375	29,633 264,018	3,271 108,171	4,136 85,886	9,789 65,342
Dundalk	... R N	8,737 56,791	10,564 66,319	8,033 63,281	2,703 14,272	3,269 18,273	2,654 16,673
Drogheda	... R N	20,762 110,238	23,300 113,504	23,747 109,826	8,373 27,768	9,389 36,308	9,271 43,768
TOTALS	...	2,702,248	2,720,930	2,326,422	699,428	665,242	684,825

* R indicates capture by means of single rod and line;
N by means of nets, weirs, etc.

APPENDIX No. 13

Quantity and Value of Sea Trout taken in 1966, 1967 and 1968 by Fishery Districts.

Fishery District	*	Quantity			Value		
		1968 lb.	1967 lb.	1966 lb.	1968 £	1967 £	1966 £
Dublin	R	413	529	601	61	77	138
	N	5,175	4,792	3,729	1,099	1,009	926
Wexford	R	2,304	1,754	561	457	258	113
	N	7,175	7,687	4,842	1,361	923	779
Waterford	R	876	870	1,251	151	147	213
	N	1,101	1,077	591	218	179	84
Lismore	R	1,379	319	268	249	59	59
	N	10,777	10,846	2,313	2,109	2,046	352
Cork	R	9,582	8,712	7,658	1,498	1,363	1,362
	N	978	788	765	192	154	156
Kerry	R	12,564	11,364	11,435	2,821	2,423	2,235
	N	613	513	1,507	134	128	270
Limerick	R	3,562	3,774	3,721	537	596	694
	N	24,037	29,335	3,858	4,294	4,165	788
Galway	R	1,338	1,315	1,880	230	224	409
	N	66	65	55	13	12	13
Connemara	R	9,796	8,905	9,559	1,836	1,360	1,879
	N	—	—	—	—	—	—
Ballinakill	R	5,518	6,017	4,580	880	960	842
	N	281	222	73	61	33	11
Bangor	R	6,082	6,346	6,818	963	991	1,337
	N	25	19	512	5	3	78
Ballina	R	4,691	5,361	2,970	827	945	585
	N	828	1,225	57	163	191	9
Sligo	R	657	513	386	125	86	70
	N	192	165	322	38	29	70
Ballyshannon	R	1,503	1,902	1,300	332	293	349
	N	53	58	200	11	5	35
Letterkenny	R	3,714	3,928	5,427	593	588	1,019
	N	1,689	1,805	1,903	338	268	287
Dundalk	R	2,112	2,546	2,466	349	420	492
	N	913	989	1,703	183	210	359
Drogheda	R	3,493	3,923	2,393	632	707	479
	N	1,192	1,316	646	222	223	130
TOTALS	...	124,679	128,980	86,350	22,982	21,075	16,522

* R indicates capture by means of single rod and line,
N by means of nets, weirs, etc.

APPENDIX No. 14

Quantity and Value of Eels take in 1966, 1967 and 1968 by Fishery Districts.

Fishery District		Quantity			Value		
		1968 lb.	1967 lb.	1966 lb.	1968 £	1967 £	1966 £
Dublin	...	4,643	2,853	112	1,022	430	14
Wexford	...	24,830	11,354	2,840	4,743	1,720	469
Waterford	...	6,315	5,876	5,074	1,389	822	681
Lismore	...	—	—	29	—	—	3
Cork	...	25,213	937	840	5,547	160	64
Kerry	...	17,817	1,523	—	2,600	253	—
Limerick	...	114,248	192,176	119,453	25,134	47,859	26,363
Galway	...	67,569	24,190	13,711	14,861	3,956	2,488
Bangor	...	—	—	169	—	—	37
Ballina	...	13,117	6,092	11,589	2,887	937	1,802
Sligo	...	7,441	8,730	—	1,637	1,489	—
Ballyshannon	...	19,249	16,876	23,717	4,235	3,041	3,073
Letterkenny	...	—	1,700	—	—	170	—
Dundalk	...	4,696	4,885	1,074	1,030	642	108
Drogheda	...	9,360	19,213	6,442	2,059	3,168	878
TOTALS	...	314,498	296,405	185,050	67,144	64,647	35,980

Note—The catch figures set out above are based on returns which are not complete. This explains any apparent inconsistency between the figures and the official export figures in any particular year.

APPENDIX No. 15

Total Quantity and Value of Salmon, Sea Trout and Eels taken by all Engines in 1966, 1967 and 1968 by Fishery Districts.

Fishery District	Total Weight for District			Total Value for District		
	1968 lb.	1967 lb.	1966 lb.	1968 £	1967 £	1966 £
Dublin ...	33,647	28,554	21,492	8,235	7,475	7,774
Wexford ...	64,292	55,401	63,856	14,991	16,126	23,125
Waterford ...	308,744	352,449	335,793	79,778	84,058	96,020
Lismore ...	152,511	189,649	202,177	39,509	53,045	66,064
Cork ...	113,820	97,209	106,385	28,171	26,136	31,671
Kerry ...	251,225	436,182	272,699	63,242	50,669	72,046
Limerick ...	450,632	571,925	410,255	110,564	143,446	115,948
Galway ...	177,323	135,273	89,358	49,443	38,287	31,572
Connemara ...	16,557	14,879	12,349	3,977	2,844	2,765
Ballinakill ...	37,791	38,032	15,202	9,341	6,843	3,664
Bangor ...	123,008	66,464	62,626	28,847	13,921	15,649
Ballina ...	462,822	410,749	305,695	116,051	87,507	75,788
Sligo ...	86,326	65,445	51,427	21,485	14,917	13,811
Ballyshannon ...	186,775	184,110	127,916	45,956	42,013	30,181
Letterkenny ...	457,658	453,435	300,981	112,373	91,048	76,437
Dundalk ...	73,249	85,303	76,557	18,537	22,814	20,286
Drogheda ...	145,045	161,256	143,054	39,054	49,795	54,526
TOTALS ...	3,141,425	3,146,315	2,597,822	789,554	750,964	737,327

APPENDIX No. 16

Number, Quantity and Value of Salmon taken by single Rod and Line in 1966, 1967 and 1968 by Fishery Districts.

Fishery District	No. of Fish			Quantity			Value		
	1968	1967	1966	1968 lb.	1967 lb.	1966 lb.	1968 £	1967 £	1966 £
Dublin ...	480	494	550	3,437	4,399	5,033	1,356	1,920	2,479
Wexford ...	564	585	2,355	4,686	6,854	23,980	2,037	2,746	9,619
Waterford ...	5,256	5,332	5,970	40,609	41,284	53,168	13,199	13,298	17,708
Lismore ...	856	1,033	1,171	7,190	8,920	9,887	2,396	2,399	3,238
Cork ...	2,195	1,992	1,494	17,317	15,742	11,668	5,685	5,166	4,393
Kerry ...	4,839	4,301	5,102	33,876	30,056	39,188	10,919	9,119	13,702
Limerick ...	4,152	4,982	5,044	28,412	34,094	40,590	8,970	10,195	14,629
Galway ...	2,379	2,333	1,083	15,081	14,787	8,143	4,780	3,926	2,761
Connemara ...	1,096	905	430	6,761	5,974	2,790	2,141	1,484	886
Ballinakill ...	775	856	386	5,107	5,603	2,869	1,617	1,435	1,009
Bangor ...	1,069	1,116	1,469	7,532	7,859	12,031	2,358	2,290	4,408
Ballina ...	3,308	3,859	2,125	21,585	25,182	14,969	6,926	7,185	4,512
Sligo ...	1,124	1,168	1,086	8,471	8,849	8,600	2,806	2,928	2,945
Ballyshannon ...	869	1,117	849	6,711	8,715	7,246	2,108	3,044	2,695
Letterkenny ...	2,102	2,167	3,704	15,158	15,627	29,633	3,271	4,136	9,789
Dundalk ...	998	1,210	974	8,737	10,564	8,033	2,703	3,269	2,654
Drogheda ...	1,687	1,891	1,940	20,762	23,300	23,747	8,373	9,389	9,271
TOTALS ...	33,749	35,341	35,732	251,432	267,809	301,575	81,645	83,929	106,698

APPENDIX No. 17

Number, Quantity and Value of Sea Trout taken by single Rod and Line in 1966, 1967 and 1968 by Fishery Districts.

Fishery District	No. of Fish			Quantity			Value		
	1968	1967	1966	1968 lb.	1967 lb.	1966 lb.	1968 £	1967 £	1966 £
Dublin	361	462	555	413	529	601	61	77	138
Wexford	2,511	2,600	873	2,304	1,754	561	457	258	113
Waterford	1,068	1,090	1,190	876	870	1,251	151	147	213
Lismore	1,815	453	298	1,379	319	268	249	59	59
Cork	11,947	10,867	9,654	9,582	8,712	7,658	1,498	1,363	1,362
Kerry	10,383	9,436	9,545	12,564	11,364	11,435	2,821	2,423	2,235
Limerick	3,910	4,680	4,347	3,562	3,774	3,721	537	596	694
Galway	1,235	1,210	2,117	1,338	1,315	1,880	230	224	409
Connemara	10,282	9,348	9,961	9,796	8,905	9,559	1,836	1,360	1,879
Ballinakill	5,168	5,709	4,078	5,518	6,017	4,580	880	960	842
Bangor	5,883	6,634	7,329	6,082	6,346	6,818	963	991	1,337
Ballina	4,501	5,144	2,700	4,691	5,361	2,970	827	945	585
Sligo	646	654	345	657	513	386	125	86	70
Ballyshannon	1,455	1,842	1,300	1,503	1,902	1,300	332	293	249
Letterkenny	3,698	3,722	5,890	3,714	3,928	5,427	593	588	1,019
Dundalk	1,986	2,383	2,503	2,112	2,546	2,466	349	420	492
Drogheda	3,331	3,743	2,124	3,493	3,923	2,393	632	707	479
TOTALS	70,180	69,977	64,809	69,584	68,078	83,274	12,541	11,497	12,175

APPENDIX No. 18

PARTICULARS OF RECEIPTS AND EXPENDITURE BY BOARDS OF CONSERVATORS
FOR THE YEAR ENDED 30th SEPTEMBER, 1968

Fishery District	Opening Balance	RECEIPTS					EXPENDITURE					Closing Balance
		Licence Duty	Fishery Rate	Grant from Dept.	Misc. Receipts	Total Receipts	Salaries	Water Keepers	Law Costs	Travel-ling and Misc.	Total Expendi- ture	
	£	£	£	£	£	£	£	£	£	£	£	£
Dublin	31	1,828	310	1,950	429	4,517	1,846	970	100	1,658	4,574	88
Wexford	59	1,145	2,099	1,600	70	4,914	989	2,600	69	1,529	5,187	332
Waterford	887	3,371	3,086	12,000	287	18,744	1,998	9,454	20	5,123	16,595	3,036
Lismore	990	801	7,262	6,000	114	14,177	1,372	10,287	233	2,400	14,292	875
Cork	1,626	1,948	965	5,650	307	8,870	1,062	7,219	18	2,069	10,368	128
Kerry	1,065	2,978	4,803	3,500	533	11,814	1,532	7,768	348	2,376	12,024	855
Limerick	2,176	3,849	5,206	13,500	883	23,438	1,985	14,316	657	7,166	24,124	2,862
Galway	4,749	1,366	3,697	1,350	4,405	10,818	3,234	1,775	60	4,023	9,092	6,475
Connemara	490	913	2,950	—	42	3,905	934	2,395	39	607	3,975	420
Ballinakill	426	627	1,269	1,050	43	2,989	571	2,162	39	546	3,318	97
Bangor	903	1,447	1,816	2,200	636	6,099	3,152	1,556	25	1,830	6,563	439
Ballina	275	1,498	5,360	1,200	253	8,311	4,480	1,983	14	2,352	8,829	243
Sligo	917	622	1,807	800	182	3,411	1,406	1,408	54	1,046	3,914	414
Ballyshannon	876	1,627	833	2,000	2,906	7,366	1,000	5,201	—	2,006	8,207	35
Letterkenny	99	3,244	3,127	1,050	884	8,305	1,406	5,225	74	1,044	7,749	655
Drogheda	2,147	1,729	2,438	2,600	513	7,280	550	4,939	—	2,223	7,712	1,715
Dundalk	83	1,033	502	2,720	287	4,542	834	1,601	564	1,525	4,524	65
TOTALS	+ 13,101	30,026	47,530	59,170	12,774	149,500	28,351	80,859	2,314	39,523	151,047	+ 11,554

APPENDIX No. 19

PARTICULARS OF LICENCES ISSUED BY BOARDS OF CONSERVATORS FOR THE YEAR 1968

Fishery District	Salmon Rod										Special Local Licences (Tidal Waters)	Draft net	Drift net	Pole net	Bag net	Stake net	Head Weir	Box or Crib	Loop net	Snap net	Gap, Eye or Basket for eels	Long line for eels	Oyster Dredge	Eel Trap	Fyke net
	Annual (all districts)	Annual (district of issue)	Late Season (all districts)	Twenty-one day (all districts)	Seven day (all districts)	Late season (district of issue)	Foyle Area Extension (one district)	Foyle Area Extension (all districts)																	
Dublin	334	37	36		65	12		9	13	33	1	3							125	10	2			40	
Wexford	76	79	2		49	67			100	125		3	3	1					16				1	60	
Waterford	132	557	10		164	62			11	60			2								5				
Lismore	38	76	69		310	157			8	44															
Cork	127	185	10		876	200			60	25															
Kerry	152	191	8	1	310	157			70	5		2	4												
Limerick	188	584	26		159	102			99	78															
Galway	59	110	26		274	67			11																
Connemara	8	15	3		429	182																			
Ballinakill	13	11	13		225	95		1	18																
Bangor	55	36	20		351	110						1													
Ballina	59	160	11		232	40			13	16															
Sligo	32	99	10		68	11		2	14	85															
Ballyshannon	41	41	6		156	15		22	5	12		1													
Letterkenny	82	390	2		262	49		30	65	19															
Drogheda	159	112	4		35	26		80	35	46															
Dundalk	78	102	7		17	66		8	140	1															
TOTALS	1,633	2,785	194	1	3,741	1,261	98	88	681	505	1	7	9	1	31	29	14	102	15	149	37	102	15	180	

APPENDIX No. 20

Licence Duties Payable on Fishing Engines.

	£	s.	d.
On each Salmon Rod—Annual (valid all districts) ...	4	0	0
Do. Salmon Rod—Late Season (valid all districts) ...	3	0	0
Do. Salmon Rod—Twenty-one day (valid all districts) ...	3	0	0
Do. Salmon Rod—Seven day (valid all districts) ...	1	0	0
Do. Salmon Rod—Annual (valid district of issue only) ...	3	0	0
Do. Salmon Rod—Late Season (valid district of issue only) ...	2	0	0
Do. Salmon Rod—Foyle area extension (valid all districts) ...	2	10	0
Do. Salmon Rod—Foyle area extension (valid district of issue only) ...	1	10	0
On each—Draft net ...	4	0	0
Do. —Drift net ...	3	0	0
Do. —Snap net ...	2	10	0
Do. —Bag net ...	10	0	0
Do. —Stake net ...	30	0	0
Do. —Head Weir ...	6	0	0
Do. —Box or Crib ...	10	0	0
Do. —Pole Net ...	2	0	0
Do. —Loop Net ...	0	10	0
Do. —Gap, Eye, Basket or Coghill Net for Eels ...	2	0	0
Do. —Long line for Eels ...	2	0	0
Do. —Oyster fishing engine ...	2	0	0

LICENCE DUTIES PAYABLE ON FISHING ENGINES OTHER THAN THOSE MENTIONED ABOVE.

Fishery District	Fyke Net	Eel Trap	Special Local Licences	
			Rod	Draft Net
	£ s.	£ s.	£ s.	£ s.
1. Dublin ...	0 5	—	—	—
2. Wexford ...	0 5	2 0	—	—
3. Waterford ...	—	—	—	—
4. Lismore ...	—	—	—	—
5. Cork ...	—	—	—	—
7. Kerry ...	0 5	—	—	—
8. Limerick ...	—	—	—	—
91. Galway ...	—	2 0	—	—
92. Connemara ...	—	—	—	—
101. Ballinakill ...	—	—	—	—
102. Bangor ...	—	—	§3 0	§25 0
11. Ballina ...	—	—	—	—
12. Sligo ...	—	—	—	—
13. Ballyshannon ...	—	—	—	*40 0
141. Letterkenny ...	—	—	†3 0	†12 10
171. Drogheda ...	—	2 0	—	—
172. Dundalk ...	—	2 0	—	—

† River Lackagh Tidal Waters.

* River Erne Tidal Waters.

† River Owenea Tidal Waters.

§ Owenmore/Owenduff Tidal Waters.

APPENDIX No. 21
PARTICULARS OF PUBLIC INQUIRIES HELD DURING 1968

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Date of Inquiry	Where held	Subject Matter	Decision on Report of Inquiry
4th January, 1968	Tralee	Revision of bye-laws governing the Tralee Bay oyster fishing	Bye-laws made.
17th September, 1968	Letterfrack, Co. Galway	Revision of certain bye-laws relating to drift-netting.	Under consideration.
18th September, 1968	Carna, Co. Galway	Revision of certain bye-laws relating to drift-netting.	Under consideration.
19th September, 1968	Galway	Revision of certain bye-laws relating to drift-netting.	Under consideration.
7th November, 1968	Listowel	Regulation of angling in the tidal portion of the River Feale.	Under consideration.

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APPENDIX No. 22

ABSTRACT OF STATUTORY INSTRUMENTS MADE IN 1968

GENERAL

Fishing Nets (Regulation of Mesh) (Amendment) Order, 1968, dated 4th December, 1968 (S.I. No. 254 of 1968).

This Order extends to 31st December, 1971 the period during which any net covered by Article 5 of the Fishing Nets (Regulation of Mesh) (Amendment) Order, 1965 may be used in certain areas of the Irish Sea.

LOCAL

Dublin District Bye-Law No. 541, 1968, dated 23rd January, 1968.

Revoking the bye-law made on 10th October, 1842 which contained a prohibition on the use of trawl nets in part of Dublin Bay and the bye-laws made on 10th November, 1919, which contained a prohibition on fishing with a seine or draft net in parts of Dublin Bay.

Oyster Fishery (Kenmare Bay) Order, 1968, dated 6th March, 1968.

Granting to Lucey & Sons, Limited, of Waterville, Co. Kerry the exclusive right of operating an oyster fishery in the waters described in the Schedule to the Order.

Oyster Fishery (Valencia River and Derreen River) Order, 1968, dated 8th March, 1968.

Granting to Shellfish (Ireland) Ltd., of 69/71, St. Stephen's Green, Dublin, the exclusive right of operating an oyster fishery in the waters described in the Schedule to the Order.

Letterkenny District Bye-Law No. 542, 1968, dated 23rd March, 1968.

Making it obligatory on fishermen to have painted on boats used in salmon fishing in the Letterkenny Fishery District a number corresponding with the number on the licence for the net used with the boat. The purpose of the bye-law is to enable boats to be easily identified and thus prevent unlicensed fishing.

Licence to form or plant an oyster bed No. 188 dated 26th July, 1968.

Granting to Jan Warwold Prins of Ballinlig House, Beltra, County Sligo, the right to form or plant an oyster bed within the limits of a defined part of Ballisodare Bay.

Lismore District Bye-law No. 543, 1968, dated 29th July, 1968.

This bye-law the operative date of which is 1st February, 1969, prohibits the use or attempted use or the possession in or on any boat or on or near the waters of the No. 4 or Lismore District for the capture of salmon of:—

- (a) any snap net of greater length than twenty yards or any mesh of which exceeds in length $2\frac{3}{4}$ inches from knot to knot such measurement being taken when the net is wet;
- (b) any draft net any mesh of which exceeds in length $2\frac{1}{2}$ inches from knot to knot such measurement being taken when the net is wet.

Tralee Bay Oysters Bye-Laws No. 544, 1968, dated 10th September, 1968.

Altering the daily and weekly times during which the taking of oysters from Tralee Bay is prohibited.

Tralee Bay Oysters Close Season Bye-Law No. C.S. 115, 1968, dated 10th September, 1968.

Altering the close season for oyster fishing in Tralle Bay.

APPENDIX No. 23**Distribution of Fish Hatchery Produce 1967/68**

Hatchery	River system stocked	Salmon 1,000	Sea Trout 1,000	Brown Trout 1,000
Parteen ...	River Maigue and Newport River.	847		
Lee	River Lee and tributaries.	302		
Fanure ...	Various Trust waters in Cos. Cork, Clare, Kerry, Offaly, Westmeath, Monaghan and Cavan.			418 Summerlings 339 Fingerlings .7 Adult Fish
Mullingar	Various Trust Waters in Cos. Westmeath, Offaly and Cavan.			840 Unfed Fry 259 Summerlings 506 Fingerlings
Clooncrim	Loughs Mask, Carra and Arrow and various Trust waters in Cos. Mayo, Sligo, Longford and Galway.			280 Summerlings 43 Fingerlings
Mallow	River Blackwater and Tributaries.	100		
Screebe	280,000 ova for restocking diseased rivers as follows: Cummeragh River System 85,000 River Slaney 80,000 River Feale 60,000 River Dargle 25,000 Sheen River System 30,000 Remainder to the Screebe System	370		
Bailisodare	Ballisodare River and tributaries.	50		
Cong ...	150,000 ova for restocking diseased rivers as follows: Rivers Sheen and Blackwater in the Kenmare area, 100,000 River Feale System 50,000 Remainder reared to the underyearling stage and distributed to River Moy and tributaries (100,000) River Deel (20,000), and remainder (27,000) to Corrib system	380		
Blackcastle	125,000 ova for restocking diseased rivers as follows: River Slaney 100,000 Rivers in the Dundalk District 25,000 Remainder to Boyne River System	190		
Glenties ...	480,000 salmon ova for restocking diseased rivers as follows: River Systems under the control of the Electricity Supply Board 420,000 River Barrow 30,000 Lough Melvin System 30,000 Remainder to River Owenea The sea trout ova was distributed to Rivers Sheen and Blackwater in the Kenmare area.	520	17.5	

APPENDIX No. 24

SCIENTIFIC AND OTHER PAPERS, 1968

A. DEPARTMENTAL

i. IRISH FISHERIES INVESTIGATIONS.

Series A. (Freshwater). No. 3 containing

A. E. J. Went. "Specimen" brown trout and sea trout from fresh waters and

No. 4 containing

M. Kennedy and P. Fitzmaurice. The early life of brown trout.

Series B. (Marine) No. 3 containing

J. Bracken and M. Kennedy. Notes on some Irish estuarine and inshore fishes. (Although dated 1967 was not actually printed until early in 1968).

No. 4 containing

J. P. Hillis. The whiting fishery off Counties Dublin and Louth on the east coast of Ireland. 1. The commercial catch.

ii. BULLETINS.

a. Sea Fisheries No. 5 and

b. Inland Fisheries No. 5.

giving details of work in progress in 1967.

B. OTHERS

Hillis, J. P. Large whiting, *Merlangius merlangus* (L.) from south western Ireland. *Irish Nat. J.* 16. 25.

Moriarty, C. Movements of salmon around Ireland. X. From the north Mayo coast (1962-1964). *Proc. Roy. Irish Acad.* 66. B. 1.

Went, A. E. J. Rare fishes taken in Irish waters in 1967. *Irish Nat. J.* 16. 36-39.

——— Salmon and sea trout of the Foyle system (1967). *16 Rep. Foyle Fish. Com.* App. III.

——— A review of the investigations on the sea trout of the River Foyle. *16 Rep. Foyle Fish. Com.* App. IX.

——— Spears and gaffs for salmon used in the Foyle system. *Ulster Folklife* 14. 34-38.

